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OF THE

WORCESTER COUNTY

HORTICULTURAL SOCIETY,

A. D. 1893-94.

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WORCESTER COUNTY
HORTICULTURAL SOCIETY,
A. D. 1893.

ANNUAL REPORT OF THE SECRETARY.

To the Members of the

WORCESTER COUNTY HORTICULTURAL SOCIETY:

THIS Society did not put in an appearance at the Columbian Exposition in Chicago, as, at your last Annual Meeting, you concluded that you possibly might; and, because of such default, no additional trophies will be suspended from these walls. It was determined by the Massachusetts Horticultural Society, early in the year, that it would not be in the interest of that organization to make an exhibit. Had we gone to Chicago, our Fruits or Flowers must have been displayed within the space accorded to the State Society. As a prospective guest, it did not become us to inquire too minutely into the reasons that decided the final action of our hosts. It has been intimated that there may have been a difference of opinion upon the matter of expenditure; that there were who cherished a conviction that the Commonwealth should defray the cost of making a Horticultural Exhibit; insomuch as every specimen would be contributed by individuals, at much personal trouble and self-denial, without prospect or hope of ulterior benefit. Massachusetts is reputed to have expended some $175,000, for one purpose or another, in connection with the Columbian Exposition; her most notable display being an assortment selected from the Members of the General Court,

for which suitable recognition will doubtless be accorded. But there was nothing to spare for the gardens and orchards, whose produce was so conspicuous at Philadelphia, A. D. 1876, and whose apples, at least, have achieved a proud pre-eminence throughout the older States of the Republic. The crude pot-hooks and tortuous scrawls of our school-children are gathered, from far and near, to do service as space-fillers, and money is not lacking to pay the bill. But when we would show the cull and choice of our Holdens, or Hubbardstons; our Mothers, or Sutton Beauties; the Old Guard of local pomology that never met their Waterloo! we are left to defray the cost of Exhibition, beside suffering loss of the specimens, irreclaimable because of their perishable nature. And it is ever thus, in a monotony that becomes wearisome. There seems to be prevalent a congenital incapacity to discern the actual source of the wealth of nations, that might well suggest the need of more skilful treatment for the blind as well as for the insane. The mills of men, as of the Gods, may grind slowly, and as fine as you please;—but what, after all, is the grist? Can you declare and maintain your independence of the earth, with its teeming harvests? The Committee on Ways and Means spend week upon week listening to the comparatively few workers at loom or rolling-mill, who ask that the countless millions may be forced to contribute to the profit of their private business! Does any one hearken to the cry of the consumer, beseeching only that nature and art may be allowed free course; and that besides untimely frost or drought; blight, or fierce hurricane; his meagre returns from exacting toil upon rugged acres shall not be taken from him by unfair discrimination? A tub was thrown to the whale, it is true, ballasted by a 25-cent impost on Provincial potatoes, which do not seriously compete with our own product, and for which we do not wish to pay unusual prices when we send to Nova Scotia for new and healthy seed. Barley is also subject to duty, if grown in the Dominion; but what does that profit those who living in Negation, are not supposed to know the uses of malt; or to value the original package for the sake of a latent virtue that is outlawed in the extract! There are Schools of Physics and Metaphysics, until the brain becomes tired in computation of the provision for

teaching that which we better not learn. The General Court perplexes itself with local snarls concerning shoals of unsavory fish, floundering about in hopeless entanglement among the meshes woven for inferior sculpins. But the Experiment Station so sadly lacking in such localities as this; the imperative wants and possibilities of research and discovery in every branch of Terræculture throughout a County so large as Worcester, with its diversity of climate, soil, and geographical contour; are wholly overlooked, or dismissed with scornful indifference. What is the field ripe for the harvest; or the orchard laden with bounteous promise; to the Professors of *Labor!* forsooth, who toil not, neither do they spin; but from out whose mouths issue yarn never ending in tissue yet constantly attenuating in thread; the sinuous demagogues of glib tongue, whose religion is office in continuous tenure, and who live up to their faith! It is not that this Society, in particular; or Horticulturists elsewhere in Massachusetts; are suppliants for public bounty: their contention is simply that they shall not be singled out, as the only class of producers in this Commonwealth able, and therefore compelled, to take care of themselves. A Republic can only endure strong and prosperous, when the equality of its citizens is recognized, as well in practical administration, as in official lip-service at Cattle-Shows and Horse-Trots!

For matter of fact, perhaps it is fortunate that this Society was not formally represented at Chicago. It happens to be the Odd Year, as known to Pomology, when for some reason not universally acknowledged, yet mayhap not wholly inexplicable, our most valuable Apples return scarcely any harvest. Our tables may show sample-plates of Baldwin, Hubbardston, or Mother, in Autumn: for the day will never dawn while life endures, when the Orchards of Worcester County shall refuse to yield measurably, if not immoderately, as too often wrongly allowed in the even year. But when it is our purpose to challenge the Pomologists of the Republic for pre-eminence in especial classes, we cannot but wish, or insist, that our efforts shall not be handicapped by unnatural conditions. Chief among which may be counted, because of recent experience, unbroken drought at the formation of the embryo, prolonged throughout

the period when the young fruit was assuming form and substance; that and other adverse influences culminating in a tropical hurricane which stripped where it did not uproot the tree; and sapping faith in the assurance of seed-time and harvest, while ruthlessly annulling the labor of an entire season.

Since the above was written, I have received a copy of the "Paper," full as an egg of meat, which our honored President read before the Massachusetts Horticultural Society, on February 4th, ulto. Dilating upon "The Economics of Horticulture"; its theories in speculative science and their beneficent application in practice; contrasting, in terse narration, what has been done, and is now doing, with a vision in perspective of what might be achieved under propitious circumstances; *President* Parker spake thus pat and to the precise point of my contention:

"And what forbids the Commonwealth, which from time immemorial has taken Agriculture under its protection, which has drawn annually so many thousands of dollars from its treasury for the destruction of insect pests, for sanitary purposes, for experimentation in sewage disposal, for a thousand things from which no return could ever be expected—what forbids the Commonwealth from lending to these Societies its fostering care, when it can so easily be demonstrated that every dollar thus spent will prove a paying investment?"

The display of Out-Door Grapes by the Agricultural College of Massachusetts, on the 5th October, ulto, for which we were, and shall continue, so much indebted to the zealous interest of our veteran Judge of Fruits,[1] sharply marked a stage in the achievements of our local viticulture. Within the memory of the writer, a few clusters of Isabella in a propitious season; a few bunches of Northern Muscadine, no matter what the season; were all that enabled indulgent parents to set the children's teeth on edge. The introduction of the Concord, for which Horticulture owes such an unpaid and, as it were churlishly acknowledged, debt to Mr. Bull, defined the first real step towards actual improvement of the Grape in quality and hardiness. Since then viticulture has progressed *a pas de géant:* the main difficulty being to impose a check upon that good nature which is too ready

[1] James Draper, Esq. See Appendix for list of the ninety-two varieties. E. W. L.

to indorse a new fruit, upon the solicitation of the oily tongue enlisted in its behalf. I know not how many of you concur in my individual appreciation of what are familiarly known as the Rogers Numbers. Cherishing a strong partiality for them, and therefore having devoted some time and care to their culture, it was a pleasure to avail myself of the courtesy of Mr. Draper, whereby I was enabled to test, at leisure, a baker's dozen of those superior hybrids. One or two, *Goethe* notably, were scarcely ripe enough for a decided opinion. The size of the berries was noteworthy; especially so in the cases of *Herbert*, and *Massasoit*. The black approved themselves ripest; although it seemed as if a somewhat longer exposure to an autumnal sun would have mellowed the pulp in almost every case, perhaps eliminating a slight foxiness traceable to the inferior parent. There are many, like your *Secretary*, who rather prefer a grape that requires some chewing. For that the Rogers Nos. can be depended upon. Yet, when thoroughly mature, they will linger upon the tongue only long enough for safe exclusion of the seeds. And it would be hard to recall a season in which there has not been complete maturity of *Lindley*, *Massasoit*, *Merrimac*, and also in the personal experience of the writer,—*Barry*. It should be noted in line with the argument of your *Secretary*, that a majority of the clusters bore manifest traces of an application of the Bordeaux mixture; showing that science and practice accord, with happy agreement, in the only County of Massachusetts that boasts, thanks to the Federal Government! and not to any concern of the Commonwealth, an Experiment Station instinct with progressive, vital utility. When sound judgment has resumed its sway throughout the State, so that vast sums will be no longer wasted in a futile struggle against insect fecundity, in regions that are essentially manufacturing, it may be that the Terræcultural Counties can obtain a hearing, and thereafter secure what will be of some direct, actual benefit.

The authority that is, and that which would be, on either side of the Atlantic, attuning a profound note in G.,—*Gladstone* or *Greenhalge*,—are tireless in their exhortations to the yeomanry of Mid-Lothian, or Middlesex, to diversify their methods of Terræculture, substituting Fruits for Corn,—Celery for Pork!

Their taste is beyond criticism, if the palate may decide the award. But thereafter comes the man who must "eat his bread in the sweat of his face," challenging these aspirants, who would fain be guide, philosopher, and friend, of the multitude with votes, to pledge themselves that the gardener or orchardist shall surely gather where he has strewn! To guaranty the laborer in furrow or vineyard, immunity from the depredations of those chevaliers who have received their accolade in that ultimate grade of modern chivalry, whereof the insignia is two tired hands surmounted by a jawbone in ceaseless motion! Will their influence be exerted to safeguard those whose work is not, and cannot be, regulated by the clock,—a mere measure of time,—but rather by the multiform exigencies of varying seasons? Will they abolish all that so-called protection which aims to put the cripple or shiftless upon a plane with the diligent and vigorous; that hybrid paternalism which ignores laws old as creation,—the alternations of heat and cold, the countless vicissitudes of drought or flood; enacting that industry and laziness shall be meted with like measure; that the Statute-book and not the laws of Nature shall determine the hours of labor; and that the sluggard, to whom adze or broad-axe are as one, shall hew to the line with either indifferently, nothing but chips resulting. "Property is Robbery!" shrieked Prudhon. *Proprius* in Latin,—that which is our own; peculiar to oneself! I take a tract of waste land, subdue it, plant it, and naturally expect to reap where I have sown. But the serfs from effete despotisms, imported to toil in our mills that thereby "Home Industry" may be protected! construe what little law they know to suit their appetites, prowling around with fire-arms and taking, with reckless violence, whatsoever they find to hand. The civil authority taxes the owner and grower upon his realty and its produce. Is there no reciprocal obligation? Does not the levy and collection of a tax imply a corresponding duty? Why do I pay a tax, at all? Not simply because it has been levied, and I cannot help myself; since then it is resolved into a wanton exaction: but on account of the security to my property and life which the whole community bind themselves theoretically, howsoever they may fall short in fact, to afford me in return for the assessment. What satisfac-

tion is mine, as I deplore the theft of my Grapes, to be assured that some other tax-payer has been stripped of a case of beer! Or how much better off am I, that the fiery wines of the Orient, from Cana of Galilee, are subjected to almost prohibitory imposts, when lawlessness is suffered to ravage my premises, robbing me of unfermented juice and fruit with equal impunity, in the original package! Theft is forbidden by the Decalogue and, from the foundation of the world, was ever branded *malum in se*. Beer and wine have been, at times, *malum prohibitum;* at other times commodities whereof the market was as free as that for milk. Yet the whole power of a municipality is directed to suppress a use because of a possible abuse! while the garden and orchard are left unprotected that the vigilant guardians of civic peace may preen themselves on dress parade. Is there a granger within range of my voice, no matter how zealous he may be that the entire physical force of the State shall be wielded to deprive his neighbor of some favorite beverage, who does not dread to leave his home on Sunday lest, on his return from "meeting," he may find that his family have been subjected to insult, if not outrage,—his farmstead to lawless depredation and waste! Stop trying to weave a silk purse from a sow's ear! groans the taxpayer from beneath his onerous burdens, and make proper use of actual forces! A true police should consist largely of skirmishers; falling back upon the military as the embodiment of the physical power of the Commonwealth. It wastes time and perverts energy trying to emulate a Macedonian Phalanx. On horseback, or availing itself of the electric cars, it may not be actually omnipresent; but it can be on the spot in case of emergency, in season to head local resistance to outlawry and to signal for re-inforcement. The shops along Main and Front *Streets* are filled with able-bodied men who should be adequate to preserve the peace of the vicinage. The outlying suburbs and detached farmsteads may well insist that they shall have some other experience of municipal government than its *exactions!*

Our local Exhibitions have been held with their usual measure of success, so far as success may be computed from exhibits. In

a majority of the lesser fruits, we appear to have actually receded: Strawberries and Raspberries, especially, scarcely coming up, either in variety or quality, to the high standard maintained in former years. Somewhat of this depreciation is justly chargeable to the season,—the prevalent drought in particular; owing to which your *Secretary*, for the first time in a long experience, was unable to gather even the smallest measure of *Hornét* or *Brincklé's Orange.* High winds have caused much damage to the larger fruits, stripping them prematurely from the trees and seriously marring them in their fall. But after all, is it not a grave question;—what do our Exhibitions teach? Premiums go to fill the pockets of those who get them. Yet what does the Society receive in return? What do we know, after the award, more than before, of the conditions under which the approved specimens were grown? Take for example, that remarkable display of Earle's Bergamot, on Sept. 14th, ulto. What, if any, were the peculiarities of soil, or culture, that conduced to their signal superiority? Its parentage renders the question one of importance, if we would perpetuate that noble variety, once so nearly lost, and now but sparsely propagated upon less than a dozen trees, on as many house-lots in the very heart of the city, liable to be built over at any time to the destruction of the trees and the extinction of the variety. And what of that lot of huge *Superfin*, shown by Mr. Moses Church, on the 28th of September, whereof the twelve specimens weighed but a fraction less than as many pounds![1] Why did not his trees die from the Blight, by which they were so sorely afflicted? Did Linseed Oil save them after all, and is it therefore an approved remedy for that mysterious disease, which comes without warning and disappears as suddenly, leaving desolation in its insidious path!

A. D. 1847,—One Hundred and Seventy-Two (172) plates of Peaches were displayed upon our tables, at the Annual Autumnal Exhibition. Two years later the number of plates was Two Hundred and Fifty-Six (256); John Milton Earle contributing Seventeen (17) varieties, among which were Early Crawford, Late Crawford, Cooledge, Red Rareripe, Yellow Rareripe, George IVth,

[1] The exact weight was 9 lbs. 10¾ ounces. Their size was none the less remarkable that the award was made after a scale of points. E. W. L.

White Imperial, Beers's Late Rareripe, Bonaparte, Late Admirable, Morris Red Rareripe, Yellow Alberge, Blood, Morris White, Rareripe Seedling, Bullard's Seedling, Yellow Melocoton. Of that Exhibition, as a whole, that careful and conscientious Judge, the late Dr. William Workman, to whose diligent service upon its Committees the Society was so much indebted in its infancy, declared with unwonted emphasis:

"We have had no show of Peaches in any previous year that would at all compare with the magnificent display of that luscious fruit collected on our tables this year."

Ten years later, the elder Salisbury, in his Report upon our Grapes, Peaches, &c., &c., utters the subjoined wailing note:

"It is the melancholy duty of the Committee to ask the particular attention of the Society to the specimens presented of the most delicious of all fruits, the Peach; and first, thanks must be offered to the contributors who, under the discouragement of an unpropitious season, with extraordinary public spirit, have offered the Peaches on your tables which, as in the case of some other farmers' families, are more excellent in their pedigree than in themselves. . . . The disease called the Yellows has continued its destructive course, and it is still a mystery to the most skilful observers of vegetable life."

A. D. 1866, *Judge* Francis H. Dewey, from the same Committee, reported:

"The Committee deeply regret that their labors were greatly diminished, owing to the reduced number of entries. The severe weather of last winter had been especially injurious to the fruits coming within their jurisdiction. Of Peaches, not a single specimen was presented," &c., &c.

Our latest winter was as severe as that to which *Judge* Dewey referred, but yet on the 21st of last September, the display of Peaches in our Hall was of singular excellence and variety. It must be confessed, however, that the Yellows betrayed its presence in the mottled skin of many specimens, otherwise promising; although by their side were other lots immaculate in appearance and of manifestly untainted texture. Are we careful to plant pits that are free from disease? Of course, there cannot be absolute certainty; but then it rests with ourselves alone

whether to reject or use the stones of fruit that is surely tainted. Wrote Andrew I. Downing, a half-century since, in the very first edition of his invaluable work on "The Fruit and Fruit-Trees of America":

"In this total absence of proper care in the selection both of the seed and the trees, followed by equal negligence of good cultivation, is it surprising that the peach has become a tree comparatively difficult to preserve, and proverbially short lived! . . .

"The utmost care should be taken to select seeds for planting from perfectly healthy trees."

Are we wiser than our fathers, or merely too careless or lazy to profit by their experience? In the most recent competition for our premium proposed for—"A new Seedling Peach originated in Worcester County"; it was discouraging to note the number of specimens offered, in which pervading taint was manifest to the most casual inspection. Are peach-stones obtained with such difficulty that we must needs make use of those from infected fruit? Our Hall should not be turned into a quarantine station, and corrupted or diseased fruit should find no welcome in it, being outlawed always and everywhere.

Mr. Downing adds:

"All specific applications to the root, of such substances as salt, ley, brine, saltpetre, urine, &c., recommended for this disease, are founded on their good effects when applied against the *borer*. They have not been found of any value for the Yellows."

Fifty years have rolled by, and it is but a short while since we had a note of encouragement from Amherst, conveying glad tidings of great joy, fraught with assurance that the Yellows had been finally conquered by a direct application of specific remedies. That note is attuned more softly, of late, and at no time became loud enough to disturb the music of the spheres. But now comes our honored Associate, venerable among Pomologists everywhere, of whom he stands towards the ripe close of a stainless life *facile princeps*, John J. Thomas, challenging attention to the experiments of Dr. J. F. Smith, of the Department at Washington, by which it is made to appear conclusively that "applications of potash, phosphoric acid, nitrogen in various forms, bone-black, nitrate of soda, sulphate of ammonia, ashes,

&c., &c., have no appreciable effect towards the cure or prevention of the Yellows in the Peach." The opinion of Mr. Thomas is, that "we must look to some other remedy than applying compounds to the tree. So far, the only efficient cure is the removal of the affected trees by the roots."

Shall we therefore abandon the problem as insoluble? Home-grown peaches in plenty would be as agreeable to the palate as helpful to the pocket. Memory yet recalls the exquisite flavor of the Cooledge, when first introduced; of the Red, and White, Rareripes, with the Royal George; either or all plucked at complete maturity, with flesh warmed by the rays of an autumnal sun. Is the task of re-invigoration too arduous, so that we would fain leave it for others to achieve? The Commonwealth maintains Normal Schools to show how to teach! Might it not be fully as useful were there Schools that would instruct in what manner, in what measure, and under what assured conditions, the noblest of all fruits of a temperate zone, can be produced in pristine health and vigor! Does our Society attain its loftiest aim when it sets its members in a row, and bowls them over, indiscriminately, with fifty-cent gratuities?

Lacking somewhere nigh a quarter of the century, the Worcester Agricultural Society was founded, in this County, by men foremost in their respective avocations. Throughout a full generation it went on its way, strengthening in purpose and gaining ever more popular favor and support. It stimulated betterment, provoked rivalry, and achieved eminence far beyond the especial confines of its peculiar province. Had it done nothing else save impress the vigor and excellence of the Short-Horn and Ayrshire breeds of cattle upon our native herds, no one could with truth dispute that the benefits resulting from the existence of the Society more than repaid the cost and trouble of its origin and maintenance. The Jersey had not yet left the Channel Islands, to be-fuddle the average Yankee with its superfluous cream and deficient milk! But cream cannot be made to serve for a beverage, so perhaps our fathers were well enough off with the old-fashioned udder that stripped at the pail-full. Yet the aim and efforts of the Society were not restricted to the improvement of

live stock. Much was accomplished for the development of Pomology, although the term itself was scarcely known; and in a day when the stage-coach supplied the swiftest means of intercourse, knowledge and dissemination of newer and choicer varieties of Apple, Pear, Peach, and Plum, increased with a rapidity that appears now almost incredible. They enjoyed the Baldwin and Rhode Island Greening,—so were sure of their pies; the Bartlett and Seckel answering for dessert. In the variety and high quality of home-grown Peaches, their children have never equalled them. Not content, however, so long as there were better things in prospect; and thoroughly convinced, from individual experience that the cultivation of Garden and Orchard exacted and would justify exclusive attention; the more sagacious of these men founded this Worcester County Horticultural Society, designed and declared to be for "advancement of the Science and encouragement and improvement of the Practice of Horticulture." Pursuing that aim, and adhering closely to that uniform line of policy, Horticulture has advanced with giant strides in this its congenial home. Town and city alike have felt the power of our organization, the eye and palate being equally gratified by its beneficent influence. We have followed our own beaten paths, interfering with none, antagonizing none; possibly provoking attempts at feeble rivalry, but never of set purpose challenging it.

Yet, of late, we have been cajoled to abate somewhat of our energy, and, out of superfluous good nature, surrender a portion of our chosen field to the spasmodic guidance of the Agricultural Society. Is it not time for us to pause and reflect if we are warranted in so doing! If we fully carry out the objects for which we were incorporated when we abnegate the exercise of our functions in favor of others who profess readiness and ability to conduct them, one week in the year! Whether, in short, we are prepared to admit the existence of another Society, in this County, which is capable of doing our especial work so much better than ourselves that we are ready and willing to quit the field, even but for a brief period? There can be no escape from this conclusion: either others do our duty more satisfactorily, which we freely acknowledge by our inaction; or we stand one

side and allow inferior experience and knowledge to usurp that direction and proficiency which has been our peculiar boast for a Half-Century. Wrote George Jaques, A. D. 1847:

"Few similar Associations have accomplished so much, in so brief a space of time, for the purposes to which they have been devoted, as has already been achieved by the Horticultural Society of Worcester County, in these the first years of its infancy."

"*If they do these things in a green tree, what shall be done in the dry?*"

And now, after the lapse of so many years, as we look around upon the multiplication of Garden, Orchard, and Park, that shine as jewels in our local landscape, is it not permitted us to inquire if this Society, to which so much credit belongs for the general adornment, can justify itself for stepping voluntarily to the rear! Grant that the Agricultural Society is involved in onerous indebtedness! Are we the horse-fanciers whose broken promises led to incurring that hopeless burden? We have obligations of our own, incurred for legitimate improvement of our property: shall we therefore start a race-track and manage a circus? Is there any option for us, if we would maintain this Society in full health and vigor, save to keep it persistently in the ways that have so far guided us safely;—the ways of thrift, active development, and open beneficence?

For it must be noted that, whereas our own Exhibitions are free to all who choose; the results of our experiments and theories being published to the entire community, without price, at the exact date of floriage or fruition; the alien entertainment which we are solicited to provide, in part, is burdened by oppressive charges. Our Members must purchase admission, with others. From our own Hall we go forth to the highways, inducing the wayfarer to come in and see what the earth hath been made to yield under assiduous culture. Elsewhere, — they *close in* the highways, put restrictions upon egress, and exact weighty fees for each successive entrance. Wherein, in all this, do you "advance the Science and encourage or improve the Practice of Horticulture?" Stimulated to the utmost during the half-century of your corporate existence, Horticulturists throughout the County

have striven for perfection, knowing that nothing else, under your rigid inspection, can attain the prizes of your high calling. They have searched keenly for the slightest blemish, well aware that the sharp eyes of your judges are trained to detect and expose the least defect. Yet now you would neutralize the good that has been achieved with so much toil and self-denial; relinquishing your official oversight and accepting *indigesta moles* in lieu of selected specimens;—the crude mass as a substitute for the consummate unit! The very aim is avowedly mercenary, defeating itself by the sheer multiplicity of objects; they, in turn, being lost to observation in the throng of sightseers whose multitude, if condensed to the extreme of immobility, best suits the acknowledged greed of the occasion. Turnstiles click to the tune of—The more The merrier! and, when movement is clogged to the inertia of utter stoppage, even casual inspection becoming impossible, it is then that you appreciate clearly the exact scope and worth of your latter-day Agricultural jamboree! A languid concern may be shown in the yield of designated animals; possibly the Dorset-Horns provoke a faint curiosity; but when it comes to a computation of gate-receipts, there is a commotion that would better herald the passage of the contribution box through a penurious and somnolent congregation.

And all for what? That we may add to the crude mass of horticultural produce heaped up before a crowded throng of careless observers, to whom the nicer points of pre-eminence, as defined by long years of critical judgment in our own Hall, are a stumbling-block and foolishness. The antics of Performing Dogs, or the capers and contortions of the Ginsling Brothers,—wherein, be it yelp or grimace,—has Horticulture part or lot! In the quaint phrase of the Prophet Abraham, "for those who like that sort of thing, such are probably just the things they like." Preserving our integrity, we can maintain our rank as one of the very foremost Societies devoted to our especial Science, and Practice, in this broad Republic. Relaxing that strict consecration, our energies are weakened by neglect or diffusion, the enforced halt becoming a vital, if temporary, paralysis. The taste and knowledge so hardly acquired, and so keenly polished, become impaired, or dulled, when constrained to the analysis of a

floral and pomological hotch-potch worse than the original chaos. Loyalty to our own Society may not preclude a mild dissipation, or indulgence, in those weak invasions of Horticulture which, at times, so absurdly challenge our supremacy. But no true pomologist will gather, in September, Baldwin, R. I. Greening, Palmer, or Sutton Beauty; no more than at the same premature date, Bosc, Comice, Seckel, Anjou, or Lawrence. To the just judge, unripe Grapes are as sour as, for a different reason, they approved themselves to the fox in fable. Our Members can continue to spoil the Egyptians, if such loot is to their taste; and the children of Pharaoh will neither know nor care. But not avowedly as members; nor with the open or yet tacit license of the Society. Our co-operation cannot be halfway, no more than we could touch pitch and escape defilement. It is of slight account what individual citizens of Worcester may do in connection with the annual attempt to compress yet a little more into inadequate space. But it is of vital consequence to American Horticulture, when the Members of a Society, acknowledging few equals and no superiors, in its specialty, throughout this wide Continent, shall continue deliberately, for the sake of a few dimes or dollars, to ignore the laws of Nature; to repudiate the lessons taught by their fathers and enforced by their personal experience; to confuse the Seasons, perverting their Harvest-Home into the mist and murk of the Autumnal Equinox!

So much at least we owe to our profession of Horticulture, that we tolerate no abatement of the honor due to its Science and Practice; that we safeguard the reputation of our fathers, and the trust which they committed to our hands, by declining to continue partakers in the iniquity that, ignorantly, or of deliberate purpose, would derogate from its integrity; and that we no longer rest content in a stupid severance of the members of a homogeneous body, choosing rather to abide by the definition of the lexicon which declares Horticulture to be the "cultivation of a garden or orchard"; and cleaving to the faith as revealed, that God "placed man in a Garden called Eden," wherein He had planted everything good to eat, and for his lack of self-denial, expelled him therefrom under sentence to "eat the herb of the field" and to follow Agriculture "in the sweat of his face"!

What God hath joined together, shall the New England Agricultural Society put *asunder!*

"Why are these things thus?" was the homely phrase in which the foremost, because truest, American Humorist set forth the puzzle that has taxed the wit of Humanity, aforetime. What was the primal cause of anything, within our immediate experience, that so far attracted attention as to provoke inquiry! And therefore, dismissing the Cosmic Egg, and the consequent evolution, the insoluble problem being now, as ever, whence came the very Egg! We apply ourselves to the question,—

"*Si parva licet componere magnis*,"

why was this Worcester County Horticultural Society ever constituted? I do not refer to the formal organization, A. D. 1841, when Worcester, with its stagnating Canal and nascent Railways, might be regarded as having taken permanent precedence in the County, otherwise than as its shire Town. But how did it chance, or by what wise prescience was it arranged, that just as the time was ripe the men were on hand to avail themselves of it! May not something be attributed, fairly, to political causes, speaking in the broad sense of the term; to the fact that the sessions of the General Court were held in that season of the year when Nature was putting forth all her efforts to adorn the landscape; and man, if not blind as a bat, could scarcely be insensible to what was going on around him! A remark made by the then Governor of the Commonwealth,[1] a few years after a Constitutional Amendment had fixed the commencement of the legislative year in January instead of May, wherein he expressed a fear that his support of that change was the greatest error of his political life, impressed itself upon my memory, indelibly. If you travelled to Boston, the stage-coach supplied the only possible means of public conveyance. The journey consumed a major portion of the day, so much indeed that little opportunity was afforded, between suns, for business or pleasure. None who had plodded over the turnpike, in heat and dust, were anxious to repeat the tiresome journey until the necessity became imperative. They remained in Boston; attended the Legislative

[1] The late Gov. Levi Lincoln.

session with scrupulous fidelity; and, when disengaged, sought instruction or relaxation at the Nurseries of Brighton, or Cambridge; and equally the hospitable estates of famous local Pomologists whose prolific orchards were unstinted in their bounty to worthy recipients.[1] Varieties that had not matured when the session closed were sent to acquaintances thus formed, who naturally became appreciative and steady customers at those Nurseries, as the fruits commended themselves thereafter. Honest gratitude for political preferment took an inoffensive and peculiar form of manifestation; such being the case especially with the Sheriff of Suffolk County[2] and the Adjutant General of the Commonwealth.[2] Neither omitted an opportunity to transmit to their tried friend in Worcester scions from approved trees, and ample supplies of luscious fruit in season for those Receptions at which, as they had personal experience, their official superior was wont to entertain visitors from abroad to the Annual Cattle Show. Like gracious courtesies were a habit of Zebedee Cook, Jr., and Marshall P. Wilder. Worcester was also connected by various ties with the ancient Town of Salem, whose citizens were ever eminent for that curious proclivity to the cultivation of the soil which invariably characterizes the mariner when he ceases to plough the main. Pomological specimens from the City by the Sea were familiar here, years before the name of Manning became conspicuous upon generous annual contributions to the Exhibitions of this, infant, Horticultural Society. The opening of the Blackstone Canal to a navigation, and inland commerce, which was prosecuted with dubious success until aggressive Manufactures robbed all the water, made close friends of former strangers, introducing the banker-merchants of Providence to the yeomanry of Central Massachusetts, and riveting the ties of profitable intercourse with the bonds of social courtesy. Since in those Arcadian days, Fruit was a staple article of entertainment. Apples were placed before distinguished guests for grateful refreshment, and none looked upon their

[1] It may be pertinent to note, in this connection that, upon the roll of "Original Founders" of "The Massachusetts Horticultural Society," are conspicuous the names of Oliver Fiske, Levi Lincoln, William Lincoln, and Daniel Waldo, all of Worcester. E. W. L.

[2] *Sheriff* Sumner, and *Adjutant General* Dearborn. E. W. L.

garnishment of the table as anything out of the way. Oysters were but little known in the era of stage-coaches, and Lobsters not at all. Simplicity dominated the feast and hearty digestion waited upon wholesome appetite. Milk, of course, was in plenty, supplying material for creams and custards. But of the supper, as now known! so artificial, so monotonous, and shall I not say? so cloying! — there was neither trace nor premonition. How welcome, then, came the new varieties of Pears; the rare, toil-somely grown clusters of delicate, exotic Grapes! For upon those occasions of social amenity, when the Providence Plantations were not represented in person, by their foremost citizens, generous hampers of Chasselas, Grizzly Frontignan, Black Hamburgh, and Muscat of Alexandria attested the interest, if not the presence, of Brown and Ives. And there was "sound of revelry by night" when, at the close of their Annual Harvest-Home, of a bright October day, young men and maidens met in the dance to celebrate the Festival that was a culmination of long-cherished hopes; a Festival that exacted no charge for admission, since the Horse had not yet imposed an onerous Debt; a Festival that was free to all,—enjoyed by all,—whereof the fond remembrance is cherished as a priceless possession by a surviving few, who can never forgive the reckless mismanagement that forfeited such innocent enjoyment for generations that shall come. And all,—to demonstrate, what was never in doubt, that one horse can move faster than another!

All which is Respectfully Submitted

[by]

EDWARD WINSLOW LINCOLN,

Secretary.

Horticultural Hall,
Worcester, Massachusetts,
November 1, A. D. 1893.

APPENDIX.

LIST OF GRAPES GROWN AND MATURED OUT-DOORS

BY THE

AGRICULTURAL COLLEGE OF MASSACHUSETTS, A. D. 1893.

EXHIBITED AT WORCESTER.

Worden.
Diana.
Eaton.
Concord.
Empire State.
Triumph.
Seedling No. 18.
Grier's No. 2.
Arnold's No. 1.
Arnold's No. 2.
Arnold's No. 16.
Centennial.
Lee's Prolific.
Oneida.
Dutchess.
Pocklington.
Moore's Diamond.
Northern Muscat.
Champion.
Wyoming Red.
Goethe (Rogers No. 1).
Massasoit (Rogers No. 3).
Wilder (Rogers No. 4).
Lindley (Rogers No. 9).
Agawam (Rogers No. 15).
Merrimac (Rogers No. 19).
Requa (Rogers No. 28).
Rogers No. 30.
Rogers No. 32.
Rogers No. 33.
Rogers No. 34.
Arminia (Rogers No. 39).
Essex (Rogers No. 41).
Herbert (Rogers No. 44).
Salem (Rogers No. 52).
Iona.
Martha.
Oriental.
Norman.
Lady.
Elvira.
Elsinborg.
August Giant.
Highland.
Woodruff Red.
Ulster.
Witt.
Pearl.

Grier's Golden.
Clinton.
Hayes.
Green Mountain.
Golden Gem.
Jewell.
Moyer.
Montefiore.
Early Victor.
Brilliant.
Mills.
Peabody.
Rochester.
Jessica.
Ann Arbor.
Niagara.
Cottage.
Creveling.
Faith.
Janesville.
Delaware Muscat.
Pizarro.
Prentiss.
Etta.
Jefferson.
Antoinette.
Secretary.
Augusta.
Amber.
Victoria.
Lady Washington.
No. 42.
Delaware.
Perkins.
Transparent.
Berckmans.
Vergennes.
Esther.
Poughkeepsie.
Golden Drops.
Caywood's No. 50.
Eldorado.
Bacchus.
Norton.

REPORT OF THE LIBRARIAN.

Worcester, Nov. 1, 1893.

To the Members of the

Worcester County Horticultural Society.

In presenting the Annual Report as your Librarian I desire to congratulate the Society on the increased interest taken in the Library, not only by the members but by many who have come from a distance to consult its volumes for needed information on horticultural matters.

The following books, periodicals and papers have been added the past year :—

United States Department of Agriculture. Report of the Pomologist for 1892. H. E. Van Dieman.

Bulletin No. 3. Report on the Experiments made in 1891 in the Treatment of Plant Diseases.

Weather Bureau Reports. Bulletins Nos. 12 to 19, inclusive.

Reports from the Consuls of the United States. Nos. 142 to 157.

Bureau of American Republic. Bulletins Nos. 50 and 55.

Smithsonian Institution Reports : National Museum. Part 2, 1886 ; Part 2, 1887 ; Part 2, 1888.

Tennessee State Board of Health. Bulletins for the year.

Cornell Agricultural Experimental Station Reports. Bulletins Nos. 44 to 57, inclusive.

Michigan Agricultural Experimental Station Reports. Bulletins No. 88 to No. 95, inclusive.

Birds of Michigan. Pamphlet.

Rhode Island Experimental Station Reports. Bulletins Nos. 19 to 25, inclusive.

Fifth Annual Report of the Board of Managers of the Rhode Island College of Agriculture. Part 2, 1892.

Massachusetts Agricultural College Reports. Bulletin No. 44.

Special Bulletin. Analysis of Corn.

Tenth Annual Report of Board of Control, Agricultural Experimental Station.

Hatch Experimental Station Reports. Bulletins Nos. 20. 21.

Hatch Experimental Station Meteorological Observation Reports. Bulletins Nos. 46 to 57, inclusive.

Massachusetts State Board of Agriculture. Report for 1892.

Massachusetts Crop Reports. Bulletins Nos. 1 to 6, inclusive.

Directory of the Agricultural, Grange and similar organizations in the State. February, 1893.

Second Annual Report of the Trustees of Public Reservations, 1892.

A Memorial to Congress on the subject of a Road Department at Washington.

Picture of the Horticultural Building at the World's Columbian Exposition. A. G. Bullock.

Massachusetts Farm Laws by E. H. Bennett and S. C. Bement. Massachusetts Society Promotion Agriculture.

Report of Parks-Commissioners, Worcester. E. W. Lincoln.

Valedictory Address of F. A. Harrington, Dec. 28, 1892.

Address of Hon. H. A. Marsh, Mayor, for 1893.

Report of American Pomological Society, Session of 1891.

Remarks of J. H. Walker, House of Representatives, Aug. 23, 1893.

Town Records of Worcester, 1817 to 1821. Society of Antiquity.

Transactions of Worcester North Agricultural Society. George Cruickshanks.

From Massachusetts Horticultural Society:

Abandoned Farms Catalogue, Nov., 1892.

Loudon's Gardener, Monthly. Vols. 1 to 8, inclusive. 1826 to 1832. Formerly in library of Downing.

Massachusetts Horticultural Society Reports. 1891, part 2; 1892, part 1; 1893, part 1.

Agricultural Gazette of Australia. Part of 3 years. Dea. Proctor.

Columbian Tribute. From F. S. Blanchard & Co.

American Agriculturist. Vols. 16 and 17, bound. American Antiquarian Society.

Report of Metropolitan Parks Commission, Jan., 1893. E. I. Comins.

French Plates—Pomology. 25 numbers. Col. Wilson of Milton.

Commercial Bulletin. From George M. Rice and Wm. I. Holmes.

Purchased by Society:
Silva of North America. Vol. 5. Prof. Charles S. Sargent.

Dewey Fund:
The Shrubs of North-Eastern America. Charles S. Newhall.
Seedlings. 2 volumes. Sir John Lubbock.
Revue Horticole, 1892. Bound.
Journal of Horticulture, Eng. Vol. 25, new series, bound.
Curtis Botanical Magazine. Vol. 48. Eng. Bound.
American Florist.
American Gardening.
American Agriculturist.
Country Gentleman.
Garden and Forest.
Massachusetts Ploughman.
Rural New Yorker.
Vick's Magazine.
Mehan's Gardening.
Agricultural Gazette. Eng.
Gardener Chronicle.
Garden.
Gardening Illustrated.

All which is respectfully submitted.

A. A. HIXON, *Librarian.*

REPORT OF THE TREASURER.

NATHANIEL PAINE, *Treasurer*,

in account with WORCESTER COUNTY HORTICULTURAL SOCIETY.

DR.

1892, Nov. 1.	Balance of cash as per last report,	$327.91
1893.	Received on account of temporary loan,	494.58
Nov. 1.	Received from Chrysanthemum Exhibition,	55.85
	Received interest on deposits to date,	23.51
	From sale of tickets to Reunion,	117.00
	From rent of stores to date,	5,666.68
	From rent of hall to date,	4,368.15
	For membership fees to date,	64.00
	Total,	$11,117.68

CR.

1893, Nov. 1.	By City taxes to date,	$ 618.00
	Water bills,	81.97
	Temporary loan paid,	1,500.00
	Coal bills,	566.57
	Cash to judges,	150.00
	Worcester Agricultural Society,	100.00
	Interest on mortgage loan.	750.00
	For printing and advertising,	331.21
	On account of Reunion,	211.50
	Cash to essayists,	60.00
	Worcester Gas Light Co.,	663.23
	Premiums,	1,416.82
	Repairs and alterations,	1,395.84
	Safe Deposit box,	5.00

	Books and magazines,	44.48
	A. A. Hixon, expenses, and for assistant,	666.67
	Paid on mortgage note,	600.00
	For salaries,	1,549.97
	On account of damages,	250.00
		$10,961.26
1893, Nov. 1.	Cash balance,	156.42
		$11,117.68

THE F. H. DEWEY FUND.

1893, Nov. 1. The balance of this fund exclusive of six months' interest is $1,102.95, which is deposited in savings bank.

NATHL. PAINE, *Treasurer.*

NOVEMBER 1, 1893.

The undersigned has examined the report of the Treasurer and finds the same to be correct and properly vouched, and the cash balance is accounted for.

HENRY L. PARKER,
Auditor.

TRANSACTIONS

OF THE

WORCESTER COUNTY

HORTICULTURAL SOCIETY,

A. D. 1893-94.

PART II.

Worcester, Mass.
CHARLES HAMILTON, PRINTER,
311 MAIN STREET.
1894.

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WORCESTER COUNTY HORTICULTURAL SOCIETY.

11th January, A. D. 1894.

ADDRESS

BY

Hon. HENRY L. PARKER, President.

The opening address was made by the President of the Society, Hon. Henry L. Parker. It was informal in its character, and his topic was the "Condition and Needs of the Society." After discussing the financial position and the work of the past year, he said:—

What we most need in the immediate future, in my own judgment, is to increase the efficiency of our library, by making its contents better known and more readily accessible, by completing valuable sets of books that are now incomplete, like the Transactions of the Royal Horticultural Society, Curtis' Botanical Magazine, Icones Plantarum, and others that might be named, and by the addition of such books of recent publication as will make the library up with the times in scientific research in our special department. I do not intend by this any criticism of our Library Committee. They have doubtless done the best they could with the sums they have felt warranted in expending. I am simply calling attention to what seems to me a pressing need, as soon as the condition of our treasury shall admit.

We are accustomed to speak of our library with great pride, and to call the attention of visitors and strangers to our many rare volumes, elegantly illustrated, which we affirm cannot be

easily duplicated, and yet there are many works of a more ordinary character on special subjects relating to Horticulture, which if called for by investigators of those subjects we should be unable to produce. We have not by any means as yet a complete working library.

Hardly any addition to our library of greater value could be made than a complete set of the publications of the Agricultural Experiment Stations, with an index or catalogue. These publications, printed by the Government, might be had presumably for the asking, and a key to a subject-index of this literature could be obtained, on the same terms, of President Goodell of the Agricultural College.

Of hardly less value are the Smithsonian reports relating to botany and horticulture, and the entomological works of C. V. Riley published by the Government. Most, if not all, of this literature could be obtained through our Congressman or Senator, and would be, properly and systematically arranged and cared for and catalogued, of inestimable value.

A card catalogue should be made, not only of subjects and authors of all the books, but of all the plates as well. A library without a catalogue is like an army without a system of military tactics. These plates of plants and flowers upon our shelves, contained in the Floral Magazine, Curtis's Botanical Magazine, the Revue Horticole and the many other series of books, are an exact reproduction from nature, in color, size, and form, accompanied with a history and description, and yet are of little practical value, because they can be found only by a long and tedious search. Such a catalogue of plates would offer an incentive to an increase of membership, which should go a long way towards defraying its cost.

Under the new course of study just adopted in our schools, elementary instruction in natural history, especially botany, is recommended—beginning with the lower grades. Our teachers would find these plates, if made accessible by a catalogue, of invaluable service.

But primarily they should be made of service to our own members, and if thus made accessible, they should create or

stimulate botanical investigations or the study of vegetable physiology. Could there be a wiser expenditure of money? Of course our own librarian, with his manifold duties, could not undertake such a work, nor could such an enterprise be carried out at once. It would need extraneous help and would be the work of years. The Massachusetts Society have such a card catalogue, begun several years since, which is now well on the road to completion, and, if I am rightly informed, the annual appropriation has been only $100 for the purpose.

Again, a Society like this should possess a herbarium. The nucleus of one the Society can have at any time by accepting the offer of a member of the Society and complying with the condition imposed by him. That gentleman, perhaps the most accomplished botanist in this city, has offered to us his pressed and mounted and complete collection of the flora of Worcester County, on condition that the Society provide a suitable receptacle or, in other words, a glass case. If want of *room* prevents compliance with the condition and consequent acceptance of such a munificent offer, then the sooner we pull down and build anew the better.

Experimental Work.

I have, on one or two former occasions, suggested the feasibility of the Society sometime in the future engaging in experimental work of some nature. Exactly in what manner would be a matter of detail. It may be a serious question whether we should feel warranted in ever pursuing an independent line of action, but much botanical and horticultural work has been done in other localities in coöperation with other similar lines of investigation. The Arnold Arboretum is run in connection with Harvard University. The Shaw Gardens and Washington University, at St. Louis, were found to be of mutual benefit to each other. In fact, a class-room study of botany, however important, is but half the work. This must be supplemented by a study of plant life with all its adjuncts. And here the line of investigation runs closely alongside those of other sciences. It involves chemical analysis—the use of the microscope—entomological investigation.

For example, one of the most interesting and astonishing discoveries in botany, and a very recent one, was made by the eminent entomologist C. V. Riley in the line of his own work, and was that the Yucca plant, a plant belonging to the lily family, is fertilized not by insects in search of food, but by a single insect—a moth, belonging to the genus pronuba—called the yuccasella moth, for the sustenance of its young. This moth gathers the pollen from the anther by the aid of its tentacles, rolls it up into a ball under its head, often three times the size of its head, and holds it there with its tentacles. It then flies to the pistil of the flower, pierces it by its ovipositor, a lance-like organ which projects from the tip of its abdomen, lays its eggs through this opening and then runs to the top of the stigma and, by the aid of its tentacles and its tongue, forces the pollen down the stigmatic tube. These eggs hatch in about ten days and, as the fruit swells and grows, the larvæ live upon the seeds. As the fruit ripens the larvæ bore their way out, descend to the ground by a spider-like thread, bore into the ground a few inches, remain there in a chrysalis state and, in the course of time, come out again as moths.

The investigations which led to this discovery were made in the Missouri Botanical Gardens, formerly known as the Shaw Gardens, at St. Louis, and these investigations were afterwards continued by Prof. Trelease, Director of the Gardens.

Two of the most valuable of the works of Charles Darwin, viz.: "Insectivorous Plants" and the "Fertilization of Orchids," were the result of his study of insect life in the Gardens of Kew.

I might cite here also, as another illustration of the interdependence of the sciences, that the discovery of the theory of the cellular animal tissue originated from the discovery of the vegetable cellular tissue. Schleiden, the great German botanist, first established the fact of the formation of cells in plants. Schleiden, soon after his discovery, met Schwann, the perhaps equally eminent physiologist, and told him about it, and they discussed it together, over their beer. As Schwann went home, the thought occurred to him, if plants grow thus why not animals, and following out this thought he made experiments and investi-

gations which resulted in establishing the doctrine of the cellular animal tissue.

It is possible that the future may develop some scheme by which we might coöperate with some other society or institution in such experimental work. It is possible that State or governmental aid, which has been rendered with a lavish hand to agriculture, may be extended to a kindred science, which is hardly less a factor in economics. It is possible, that upon the strength of such coöperation, as a condition, an experiment station might be secured at Worcester.

At any rate the idea of experimental work is not a new one or original with me. Mr. Wm. G. Strong, ex-president of the Massachusetts Society, says, "the idea of establishing an experimental garden had engaged the minds of the leaders of this Society from its organization. The matter came up again when the improvement of the Back Bay lands began. Some thought that available space might be secured there, but before any definite plan could be decided upon, the opportunity passed by. We are occupying too expensive a home for our work and yet have too little room."

Mr. Francis H. Appleton, of the same Society and in the same discussion, said that "every member should consider seriously whether the Society is using its means to the greatest and best advantage by keeping them locked up in this land and building. If it shall become possible in the future to add experimental gardening to our work, or to join in any practical way with an established garden, he thought it only reasonable to believe that the Commonwealth might be disposed to entrust funds to the Society—whose objects and evident purposes were to be progressive—to directly promote the public good by practical effort to develop horticultural science."

I believe that sometime the opportunity will be presented for such experimental work, on either a coöperative or independent line. It may be many years before it comes. Till then, we need to keep our enthusiasm alive, and ourselves awake and abreast of the times. Making the best possible use of present means, and ready to grasp and avail ourselves of such opportunity when presented.

18th January, A. D. 1894.

ESSAY

BY

Rev. W. T. HUTCHINS, Indian Orchard, Mass.

Theme:—Sweet Peas and other Flowers.

Talking with Mr. Clark, of Peter Henderson & Co., last summer, we estimated that 100 tons of Sweet Pea seed were sold in this country last year. I think now that will be more nearly the correct estimate another year. Our large seed-houses now handle it by the ton. Burpee had seven tons last year, and will have about the same this year. One Pacific grower grew 30 acres of Henderson's New White, making about three tons of that alone. One Pacific grower will have 200 acres of the various sorts this year, and the other will not be far behind. I should estimate that all the other growers of Sweet Pea seed in this country will make 150 acres more. The aggregate product, if we have a good season, ought to be about 55 tons, or 200 pounds per acre, which is but the beginning of this new business in our country. Last year the English supply gave out and they cabled to Burpee for all he could spare.

It seems rather anomalous for a grower to be shovelling out three tons of one variety and to be paying $5.00 per 100 seeds for another variety, as they have been glad to do for several of Eckford's new sorts which I have just sent them. This represents the two polar facts in the progress we are making in floriculture. I dare not estimate what the demand is to be in this country, for I am constantly hearing of amateurs and private gardens where the Sweet Pea is grown almost as abundantly as the culinary pea. And as soon as people master the few difficulties in growing this flower, they want to revel in them and supply the whole neighborhood. What will even 1,000 acres of Sweet Peas be for this country's supply? It will be about one-quarter of an ounce to each family. A large estimate of

what we shall grow this year would be only one-eighth of an ounce for each family. And yet I know of private gardens where more than a pound is planted. We get an idea of what the business is from the fact that Henderson had 30 acres of Emily Henderson, a crop of about three tons, none of it being offered this year to the trade in more than ounce packages, and at 50 cents per ounce to the public.

We are sorely tried with Mr. Eckford, and are trying to Americanize him in his ideas of getting seed stock into our growers' hands so that our flower public can get his gems in some reasonable time and quantity. We ought to have at least enough stock this year of what he offered in England last year to give people a taste, but the few ounces that could be grown from sealed packets of 10 or 12 seeds last Summer must all be kept for seed stock, and even a house like Burpee's cannot offer a packet till another year. Eckford's Scotch blood must be slow or he would catch on to the Star of the West. He might have put an ounce of Blushing Beauty, or Venus, or Firefly into our growers' hands two years ago, and the crop would have been 100 ounces the first year, and 600 pounds the second year, and that crop would be worth at the English price per ounce to-day $4,800, and if the same had been done with the six novelties, which, though now old to me, have not been seen by many of you, would have made a value of $28,800. I think it would pay Mr. Eckford to be less shy with his beauties and get them into our trade. A pound of Lady Beaconsfield, Lady Penzance, or Stanley is worth to Mr. Eckford this year, in sealed packets, $320. Morse of California would be glad to make 100 pounds of that one pound in one year, and it would be easily worth $8 per pound another year. I do not believe Mr. Eckford is making money as fast as that by keeping us waiting. Our California growers have a wonderful soil, remarkably sure in its results.

The interesting points of this flower are just dawning upon the American public. I am not a special pleader, nor do I let my enthusiasm run away with me. The Sweet Pea has always borne a happy kind of popularity for its artless beauty and sweet fragrance, even in its old plebeian form. But now, with every old variety carried up to the improved form and size, and the new colors and shadings added to the list, until we have 80 or more varieties of real merit, it challenges the attention which you are giving to it at this hour, and I sincerely congratulate any one who feels the thrill of the pleasure which this flower is to afford our American lovers of flowers.

Though Mr. Eckford is slow and keeps us about two years behind the times, there are other points that I can report upon to-day with great good cheer. In the first place we are getting ready for happy times. Our large seed-houses have now found out that in handling Sweet Peas they are handling a flower which, probably more than any other popular flower, comes true to name from seed. You do not get all colors from one pod of Sweet Peas, as you might from pinks or chrysanthemums. Here is an annual, each seed of which, as a rule, produces its own distinct variety. So true is this that it is extremely difficult to cross varieties and get any direct result. From the very construction of the closed keel, and the fact that each blossom fertilizes itself when two-thirds open, the pure blood of each variety, with peculiar exclusiveness, flows on in an established strain, and you get from a reliable packet of seed the thing you expect from the name.

Now our seedsmen have sold a great deal of cheap mixture, and I have no doubt many of them have been skeptical about keeping the varieties distinct, and the new varieties have been coming over from England so fast that we have not kept pace. And then a few big seed-houses, perhaps, get Mr. Eckford's own seed and description of his varieties, but they are too busy in passing their seed along to go into particulars, and so the catalogues of the country put in their own "hit or miss" description of varieties, and in buying you are as likely to get Black for Boreatton as anything. Then the *growing of seed* is new in this country. It is only about four years ago that they disputed with me in Boston about growing Sweet Pea seed in America. I thought it could be done, but did not anticipate the success of the California growers. Now some of you doubtless did not feel very cheerful last year to find that the plump California seed did not always come true to name. They, too, have been groping in the dark, and I can tell you there will be disappointments again this season in the seed we shall buy this Spring. I can almost tell you what you will get from every package of seed, for the bulk of the seed sold here this year will be American. It is splendid seed, but it is going to take our growers one year more to get their lists down to accurate descriptions. And that is one word of cheer I bring. The first of May I expect to visit California, at the invitation of Messrs. Morse & Co., and assist, so far as I am able, in vogueing their entire crop of Sweet Peas. This is both a generous act on their part, and a genuine indication of their wish and purpose to send out hereafter only such seed as is true to name. The present year will begin an

era of reliable American seed covering the entire list of Sweet Peas, and the best thing about it is that we can supply every one with the finest varieties at a figure that will indeed make it the people's flower. I shall not give away wholesale prices and seedsmen's secrets, for the infinite details of the seed business make it worth ten cents to put one-fourth of an ounce of reliable seed into your hands, although the grower's price, and the wholesaler's price, and the florist's scale price are a long ways off from that. The growers will pay $5.00 per hundred for seeds of novelties this year, and in two years the retail price will put it into the stock of every florist. Mr. Morse, with his 200 acres of Sweet Peas, writes me this week that last season he had just *two seeds* of Emily Eckford. I suppose that is all that he made germinate from one of Mr. Eckford's sealed packets. I sometimes fail on an entire packet, and sometimes get three plants; but the second year's seed seems to be all right. But America will revel in this beautiful flower, for we can supply the world with seed. And there will soon be no excuse for any seedsman offering to his patrons a packet that is not true to name. And besides the three or four varieties which are of American origin, we have other original varieties in the works, and shall more likely be troubled with too many than too few.

And let me say I am especially pleased at the probability of all our seedsmen recognizing a standard list. Now is the time to do it before we get wild over new American varieties. And, certainly, since the Sweet Pea comes true from seed, there is no reason why our entire seed trade should not respect the standard list up to date, and as fast as new varieties of real merit are offered they ought to expect to be recognized by the trade only so far as they have been certificated by some society or association.

Now take the present status of the Sweet Pea. I hope soon to know the history of every variety. I think I can say I have confidence in 76 distinct named varieties, not counting my own. Of these, just 49 are Mr. Eckford's, not counting his Queen of England, which is the commonest kind of a white. Seven of the very latest Eckford's have been seen in England, but not here. My familiarity with all his varieties up to this year leads me to have confidence in his new ones, though I fear we shall not see them even this year. The 49 Eckfords that are distinct certainly give him the lead on this flower.

Mr. Henry Eckford of Shropshire, England, is a specialist, more particularly in developing the Sweet Pea and the culinary pea. He is also at work on pansies and cinerarias. Some of our latest culi-

nary peas are from his hand. He is an old Scotchman, and loves his Sweet Peas. About 18 years he has been patiently at work on this flower. For seven years he got no result, and was told by florists he could not improve the Sweet Pea. Besides carrying the old varieties up into improved size and form, he has given us some remarkable new colors and set this flower forward on its way to unlimited improvement. Early in the season of 1893 he sent out a price list offering six of his latest varieties, but a later list, which only few seedsmen saw in this country, offered the entire 12. Springfield had all of these in bloom. I succeeded in getting good results from all but one. The following are the names and descriptions: Blushing Beauty, a soft, light pink, about the same shade as the Mrs. Gladstone, but of the larger, expanded form; Duke of Clarence, rosy claret, like the Purple Prince and Monarch in form, but more of a wine color than either of those; Emily Eckford, a reddish mauve when it first opens and on the first day closely resembles the Dorothy Tennant, but they part company in color after that, and the former then approaches, as Mr. Eckford says, a true blue—it is characteristic of all the blue Sweet Peas that they are not blue till about the third day; Firefly, the intensest scarlet-crimson variety we have yet had, and of excellent size; Gaiety, supposed to be a white flower striped and flaked with bright, rosy lilac, but with us part of the blossoms have a cheap red stripe, and the rest have had very faint lilac markings—it either does not hold to the description or is not remarkable; Lady Beaconsfield, not a loud variety, but of very high quality, remarkable for its primrose yellow wings, and having a soft, salmon-blush standard; Lady Penzance, one of the most striking and pleasing of all, the entire flower being a beautiful lacework of bright rose pink, and of improved size; Ovid, another pink variety with margin of deeper rose; Peach Blossom, a buff-pink, the buff on the standard fading almost into white; Royal Robe, a delicate pink of fine form, but slightly different from Blushing Beauty; Stanley, a deep maroon, and promised to be a large flower, which it probably is in England, but with us has been no improvement on the Boreatton; Venus, a beautiful salmon-buff and the best variety brought out this year.

It is a bold step for Mr. Eckford to offer 12 new varieties in one season, but most of them are decided acquisitions, and we need to make allowance for the severe test of an unfavorable season and the first year's change from the English to the American climate. In 1892 we could hardly form a correct judgment of the six varieties

then offered as novelties, but this year we have seen just what they are. These are the Dorothy Tennant, Her Majesty, Ignea, Lemon Queen, Mrs. Eckford, and Waverly. The Mrs. Eckford leads the list, and is a primrose yellow of splendid form. Her Majesty is a beautiful rose, a shade softer than the Splendour and larger. Lemon Queen hardly holds to its name because in 24 hours it has faded into white, but it is larger. Dorothy Tennant is a fine mauve several shades deeper than the Countess of Radnor. Waverly at first can hardly be told from Captain of the Blues, but while the latter changes into blue, the former holds its rosy, claret color. Ignea is a crimson scarlet, a shade deeper than Firefly. This may be said, that the last two years' introductions prove that Mr. Eckford has mastered the problem of improving the Sweet Pea. We want them as fast as he can give them to us. At the same time, the demand for the entire list will be confined to only a few seed-houses and here and there a collector of varieties. Some of them everybody who wants fine Sweet Peas ought to have.

Laxton, another English seedsman, offers five new varieties. They are the Etna, Carmen Sylva, Madame Carnot, Princess May, and Rising Sun. We also have about seven of the old varieties that have come down from time immemorial, the Painted Lady being perhaps the oldest. One of the old Curtiss magazines in your library traces the origin of Painted Lady to Ceylon. About 1700 is the date of the introduction of the Sweet Pea to botanical notice. Then besides the Eckford and Laxton varieties, and the seven old varieties, there are about a dozen varieties of real merit, the names of which are more or less familiar to us. Then I think four American varieties deserve recognition up to date, the Blanche Ferry, Emily Henderson, American Belle, and Splendid Lilac. I could give a list of other names in our catalogues, but they will not pass muster. People ask me about certain names that are found in the lists of Boston catalogues, not recognized elsewhere. Some of these names now go in simply because they are in their electroplates, and it is probably cheaper to leave them in than cut them out. I keep trying every year to find something of original value in them. People will say, name the best dozen of all the varieties. I should say that of all the varieties I have seen, the best dozen are, Blanche Ferry, Blushing Beauty, Countess of Radnor, Dorothy Tennant, Firefly, Her Majesty, Lady Penzance, Mrs. Eckford, Mrs. Sankey, Orange Prince, Stanley, and Venus. And it would be a pity not to include Lady Beaconsfield and 20 others. I put in Mrs. Sankey for white because it has the improved

form. I think the Emily Henderson leads all the white seeded whites now in the trade, for it has excellent size and substance, but Mrs. Sankey is a black seeded white and very fine. I am expecting that the new Blanche Burpee will, when we get it, beat them all. Indeed, the Lemon Queen is white after the first day, and is larger than Mrs. Sankey, and has the advantage of starting in with a lemon tint instead of a pinkish tint, such as the Mrs. Sankey has. That greenish white makes the most glistening white. There is just a suggestion of pink blood in the Mrs. Sankey. The Emily Henderson is as white as the jasper-white narcissus, and has all the good qualities of the Blanche Ferry. It only needs a process of high culture and selection to carry it up to the expanded form.

Now the Sweet Pea already ranks with other popular florist and exhibition flowers. It is interesting to see how one flower after another comes forward for special culture, and not only commands a place as a leading exhibition flower, but becomes the subject of a special literature. One by one our old garden favorites move to the front and form a galaxy of competitive flowers. It is no arbitrary authority that decides what flowers shall thus be put into the front rank for exhibition purposes. Taking the season through we have a succession of prominent flowers, each one of which has its particular season, and during that time, whether for a day, week, or month, they take their turn in holding a sort of aristocratic place among the more plebeian varieties of our gardens. Any flower that commands the first place in its particular season is bound to be promoted to that galaxy of favorites which make up our list of special exhibition flowers. And every such flower will have the best skill devoted to it, and the unlimited expense and favor of the enthusiast bestowed upon it; and every such flower will have its own literature; and associations will spring up to give it their patronage and protection. Each flower must win its place as the best that blooms in its particular season, and its promotion is then assured. The pansy has its day because it has outstripped some other early flowers. The rose monopolizes our attention for its short period, and nobody thinks to put forward a rival. The gladiolus has a right to say, "My day has come." Even the aster and the dahlia command their places. And the chrysanthemum bides its time when it can astonish us all. What will you say is the people's flower in July and early August if not the Sweet Pea? Surely for a time it has hardly a competitor. And even though it becomes a drug on the florist's hands, because everybody can have an abundance of their own Sweet Peas, its popularity is on

the increase. It has passed beyond that period when its fragrance alone was its chief merit, and now the eye is charmed by the wondrous variety of colors brought out by an exhibit that is up to date. And this year is to confirm our most enthusiastic praise of it, for heretofore we could have but a few stems of the finest acquisitions, while this year, at Springfield, I see no reason why we should not have large bouquets of them. I shall plant seed by the hundred that can only be bought, and doubtful stuff at that, for five cents a seed. After burying a good many five-dollar bills in that way we get a premium of four or six dollars, if we are lucky. But the Sweet Pea has won its place, thanks largely to Mr. Eckford, and having won its place the promise of what it is to be is wellnigh unbounded. I have no doubt there is many a modest little flower waiting tearfully in the back-ground for somebody to find out its wondrous possibilities. And I am sure we are every one of us so magnanimous in our love of flowers that we will welcome the humblest of God's beautiful creations, whether a wild flower, or an old forgotten favorite, to the noblest place the specialist can make it worthy of.

Now this year will, I think, prove that the Sweet Pea no longer needs a special pleader. Any one who has seen the colors of this flower in massed bouquets, the shades of rose and scarlet and pink, the blues and purples and browns, the glistening white, and the deep velvety maroon, the ever popular pink and white, and now all these set off by such new acquisitions of color as we have in the Orange Prince, the Primrose Yellow, the delicate lavender of Countess of Radnor, the salmon buff of Venus, 80 such bouquets no longer leave us to dispute whether the time has come for Sweet Pea shows. Yes, and the time has come to set up standards of excellence for this flower, and to treat it with something more than a little gush of feminine ecstasy. There is no flower that can be classified with more scientific accuracy, none that comes truer to our calculation, and none that promises greater things.

Let me speak now in the plainest and most practical way of the rules for growing Sweet Peas. I will first point out such rules as there can be no dispute about, and then try to give the reasons why many people fail, even when trying to follow those rules.

1. Sunlight we must have for Sweet Peas, and this is far more important than the nature of the soil. And a sunny location has also the advantage of thawing the ground out early so that the planting may be done in good season. And the rows should be planned so that the morning sun will strike one side, and the afternoon sun the

other. Thank God sunlight is free to all, and its quality is just as rich for one as another. So I say choose a sunny place if you want abundance of bloom.

2. There is another point in location. Trees may not shade your garden, but they may be near enough to it to rob it of all its fertility. I would as soon have a row of trees shading it on the south side, as to have them near enough on the north or any other side to send their ravenous roots where they will suck both moisture and nutriment away from your vines. The north ends of my rows run to the front fence, and just over the sidewalk are small maple trees and one small elm tree, and they suck the ground as dry as an ash heap so that my vines dry up at the north end and make but a weak display. I shall trench all along the fence and cut off every root, but the old robbers will go at it again, and especially the elm tree.

3. The matter of soil. I am more and more convinced that a clay loam is best, but by a judicious exercise of common sense any spot of ground that has the sunlight can be made to grow perfect Sweet Peas. I have never had the right kind of soil myself, but, since I learned to grow them, I have never failed. If I wanted a row of Sweet Peas, and had only a city back-yard filled in with coal ashes and tin cans, I would agree to have a magnificent row. Of course in that case I would make a good liberal trench and fill it in with as much care as a big flower-pot. I will speak of the trench method later. Well, take any such garden soil as you have. It may be sandy, or it may be the lightest kind of an old worn out loam. It may be light clay or heavy clay. Of course those of you who are working ground by the acre know what to do in bringing up a barren sand, or a worn out loam to fertility, and how to lighten a heavy clay. But I am supposed to be helping amateurs over the difficulties of a row of Sweet Peas. People ask, should the ground be rich? I say, yes, and yet from the reports I receive of many failures I suspect people are overdoing the matter of making their ground rich. You ask a gardener about culinary peas, and he will say that dwarf peas will bear and need rich feeding, but tall peas you must look out for lest you drive them to vines by rank feeding. Well, Sweet Peas are tall, and many people do get rank vines and no blossoms, and over-feeding is partially to blame. But I am trying to make my ground very rich, for the reason that Sweet Peas have a season of six months, and I want them to keep sending up fresh branches clear into October. Of course we are not growing seed, for if we were we should plan our fertilizing so as to mature the crop evenly and at a much

earlier date than for flowers alone. But you and I want three months of bloom, and the finest blossoms will come in Indian Summer days. So I say, yes, rich soil is wanted to carry the vines through a long season. But now it is just there where failure and success hinges. Folks say to me, I followed your rules and my vines either went to rank, bloomless weeds, or else they turned yellow and died before they had any chance to bloom.

Well, now, I should say to most folks: If you have a tolerably good garden soil don't fuss with any extra manure until at least your vines get up three feet, where they are ready to feed rapidly and will digest strong food. It takes a wise mother's skill to feed a baby to make it strong, and it takes a florist's skill to know how *not* to feed a tender plant and how to feed it, so it will get the food when it needs it. I many times start slips ignorantly in pots filled with too rich a compost, and the baby slips have a precarious existence for weeks because they can't bear such rich feeding. A little learning is a dangerous thing in the flower business, and with this new revival in Sweet Peas many people have rushed in to get big Eckfords, and have put rank manure or rich compost into their soil, and starved and rotted and burnt their vines by *excess* of feeding and overanxious care. I have been burying cords of manure in my ground, but I keep at least six inches of the poorest soil on top. I want it rich down where the roots will feed, when they get large enough to feed. And we have to plant our Sweet Peas deep to stand the Summer drought. The vine doesn't feed above the root, and of what use is it to have the upper soil full of rank matter? There is where the vine burns and rots. The upper five or six inches of soil should be kept as cool as possible, and a mulching above that shades it. But suppose in your zeal for fine Sweet Peas you spade in manure clear up to the surface of the ground, and the July sun is pouring down on that, and those tender vines with their seeds down deep have got to come up through that rank, heating manure, and because they seem to grow slowly you water them, and then you wonder why they get slimy and rot and die down. Every gardener knows that peas germinate at a low temperature, and love the cool end of Summer. It is a part of our problem how to feed Sweet Peas and keep them cool in July. I stand before my Sweet Peas and wonder how, when culinary peas mildew in midsummer, these beautiful vines can hold their green thrift, and be in the very prime of abundant bloom. Now, it would be a study to tell each man how to treat his particular soil so as to get these conditions which I have suggested,—plenty of plant food, where and when

wanted, and a cool upper soil around the vines. That upper soil may be any kind of poor soil, only I would not forget the mulching. A good average garden soil is safe, because its richness is likely to be moderate and uniform. If you plant right in such a soil without extra preparation, I would, after the vines get a good strong start, give them a good occasional watering with liquid manure or wash-day suds, or hoe in such fertilizers as will take hold at once, but don't begin to do this till they can bear it.

Now, since we are apt to have trouble with our Sweet Peas if we try to manure the ground in spring, I make it a rule to put into my ground whatever manure it needs in the *fall*. And the fall or winter is the best time to put on wood ashes, which is one of the best plant foods for Sweet Peas. We all know bone flour is excellent. And, if we make trenches, tobacco stems are excellent to put into the bottom. But in every case let us either depend on the garden soil for a sufficient richness or else put our compost deep enough so the upper soil can not burn or rot the vines above the seed.

Now, I use the trenching method a good deal, and it is applicable everywhere. When you dig a trench for Sweet Peas throw the best soil on one side and the poorest bottom soil on the other. Make your trench about 14 inches deep and wide enough for a double row. Put as thoroughly decomposed manure as you can get into the bottom, then the richest soil, and leave the poorest soil to fill in afterwards. Your seed in every case should be planted five inches deep, and so you will at first fill your trench in so as to leave about five inches of it open. Plant your seed in such soil as the tenderest roots will bear, counting on the feeding growing richer as the stronger roots go down.

4. Now about covering your seed. There is no arbitrary rule. Your judgment must control. My rule is this: I plant as near the first of April as possible, and the ground is of course cold. A covering of an inch lets the sun's warmth get to the seed. But the warmer the ground or the later you plant, the deeper you would cover. It is absurd for people in a warmer latitude to follow the rule of shallow covering. And people sometimes tell me how they covered their Sweet Peas four inches and how finely they did. That's all right. I usually cover about an inch, and this year I shall not be in so much of a hurry to fill in the remainder of the trench till my vines get pretty stocky. I hope by hardening the young vines a little to the weather to have very little loss this year.

5. The *time* of planting. This depends on when your frost is out, but the nearer to the first of April it is, the better. Why? Of

course they germinate at a low temperature and you need have no fear of frosts. But it isn't impatience that plants early. This vine, with the culture it ought to have, is a tall-growing pea vine. Its habit of growth may become a vice, and it may all go to vine. You want blossoms. I can only explain it in this way. With the rich feeding we ought to give it, the only way to save it from becoming a vicious weed, is to steady it down by slow growth at first. This may be all moonshine, but I think not. Your seed should be in early and slowly starting. They should be up before the first of May, and grow very slowly for a month. People get impatient, but that slow start is a virtue, and they should not be fussed over. Perhaps they are six inches or a foot high the first of June. Pretty soon after that they are going to make up lost time, and if they have had this steadying down, you'll see the first buds about June 20th, and that one first bud then is a cheering sign on Sweet Peas. It means they are not going to rush by the blooming point and leave you disappointed. It looks to me as if the cause of rank vines and no blossoms is a quick germination and rapid start and fast feeding under conditions that do not steady it down. Early planting is a simple rule, and a very sure one. Indeed, if one waits till the frosts are by before planting Sweet Peas, they will make but little growth, until the cooler days of autumn come, when it may be they will start in and blossom to some extent.

6. Notice the rule of *deep* planting. Mr. Eckford's rule is to plant three inches deep, leaving the ground a little hollow and mulching them in summer. I do not care to set any rule for this country. I plant *five* inches deep, and what I mean by that is, I fill my trench, as I have suggested, to within four inches of the top, and sow my seed one inch deep in that, and after they get a few inches high I fill in the rest of the top soil.

7. Let me suggest, if you have never had good success, that you try another plan, and, instead of sowing your seed directly in the trench, you sow them in some sheltered place, and after they are an inch or two high transplant them into your permanent row. In any case always have enough seed to sow an extra lot for this purpose, to fill in the missing spaces by transplanting. I transplant a great many, and always have a little extra side row of each variety.

8. In the case of the expensive, imported Eckford's I dare not trust a single seed directly in the cold spring soil. These I sow in boxes or pots in a moderately warm room, and always transplant. I am asked why this expensive Eckford seed is so poor the first year. I do not think there is any dishonest trick about it. Last year I had

two packets each of the 12 novelties,—about 24 seeds each, and, in the case of Ovid, I got not a single plant; four plants of Venus; about six of Lady Beaconsfield and Lady Penzance, and so on. Another gentleman in Springfield had four packets each of the set of 12 novelties, and, though he has a fine clay loam, the results showed up about as well as mine. But this year I should have little fear of putting every seed I got from these vines right into the ground, and I think hardly one will fail.

9. Now, to go on with the rules, along the first week of June is a critical time on account of the cut worms. And yet I feel little respect for any one who will let a cut worm get more than one plant. If you have filled in your trench an inch or two by the time the cut worms come, they will simply cut off the part that shows, and there ought still to be left a joint or two of the plant, and it will sprout again. But if you have from the start covered your seed four inches and the cut worm cuts them down the plant is gone. But why let a cut worm operate more than one night. Poke him out at once and snap him.

10. About the first week of June the question of bushes or trellis is on you, for supporting the vines. I use white birch brush entirely. I have them brought to me in lengths of 12 or 14 feet, and of each one I make two, cutting the stout end in seven-foot lengths, and using the more bushy top to fill in between. I always plant in double rows so as to bush between. And unless you have *stout* brush on which they can climb six feet some August storm will lay them out for you. I find it difficult to persuade people to bush them strongly. Last year I paid a man a cent and a half for each 12-foot brush delivered.

11. Now the chances are when you find that some of your seed did not germinate, and the cut worms have foraged on them, and the blight still further has depleted them, you will wish you had planted your seed thicker. But first mind this, if, when your vines are beginning to bloom, they stand three inches apart that is all right. And if you take them in time you can supply missing places by transplanting. But I would plant seed enough, not thickly in straight lines, but sow the double rows in a loose line, by which you can put in twice as much seed without crowding. And do not fail to thin out at last if necessary.

Let me urge upon you great patience in growing Sweet Peas. The month of May will find you wondering why they grow so slowly. By all means let them grow slowly in May. It is a great virtue. They

are making a root. Keep the weeds and the hens out, but do not fuss over them in May. There ought to be little need of watering them till later, and do not put any suds on them till they are stronger. They must grow slowly or you will have no blossoms.

My new book will illustrate seven or eight styles of trellis. A little ingenuity allows plenty of ways of making a trellis, but it must be six feet high, and must not cramp the vines.

12. I am sorry that people disobey one rule, and that is in letting pods grow, and saving a lot of seed. If they are growing seed all right, but if they think they can enjoy blossoms and save seed too, I simply say they are welcome to such seed as they will get. They will have about a third as many varieties next year, the cheaper sorts predominating, and if they follow it up they will have just such Sweet Peas as their grandmothers had. An ounce of a dozen varieties can be bought at a first-class dealer's for ten cents, and an ounce is enough for most folks. What enjoyment that means for ten cents!

Now we shall be out of fashion if we do not have a fine row this year. The best rule of all is, Keep on trying till you succeed.

There is a question before this country of getting seed of the very highest grade. We want to be assured that if we pay a first-class price we are getting seed that will produce varieties at their very best. If we buy a packet of Eckford's Monarch we want it to be the full sized Monarch, and not the old Black Sweet Pea. If we pay for Senator we want Senator in its noblest form, and not the old Dark Striped. Our choice is going to lay between sending to Eckford for his sealed packets, or else beginning now in this country to start a line of special seed growing in which the most careful attention shall be given to a small acreage to hold these new varieties at their best. Of course it will be to the interest of our large growers to make their seed stock just what it ought to be. They cannot save a few pounds of seed each year from their general acreage, and use it for seed stock, and expect to keep the varieties up to their best type. They should cultivate an acre or more every year by itself, and put on to that acre a skilled florist, and bring every vine to Eckford's highest standard. The seed grown on that special acre is the seed you and I want. The seed you and I get is from a field crop grown on large contracts, and most of it is good seed, but I see plainly the indication of the varieties falling back to an inferior form and size. Well, Mr. Eckford sells no variety less than a shilling a packet, and while you can rely on his seed being true, you cannot rely on its germinating in our severe climate. I like those California growers, and have great

confidence in their intention to do the best possible thing for us, but it is "business" with them, and they have got to grow tons of seed as cheap as possible, and all their seed passing through the trade must be of this kind grown on contract or for trade prices. The wholesale prices are not very different between the Hopkins strain and the Morse Company. I have no doubt that as this business develops they will give us what we pay for. They would take double pains with a crop for double price. I shall do my best to keep the matter stirred up at this end. The Sweet Pea is now an exhibition flower. In chrysanthemums you can make slips form the finest sorts; in Sweet Peas we depend wholly on seed. You can buy pansy seed at all prices. We certainly ought to have two sets of prices on American grown Sweet Peas. I have no doubt this country is to be the great source of supply for this seed. I even believe our Pacific coast will by special culture carry this flower in form and size and substance beyond Mr. Eckford's most sanguine work. Perhaps the demand has hardly yet risen for high priced seed, and certainly but few of Eckford's expensive packets are sold in this country, but the tide of interest is rising. The Sweet Pea is at a stage now when a special trade should be cultivated in the interest of those for whom price is a secondary consideration, and those who are entering the lists for competitive floriculture. You can get no definite idea from most of the seed catalogues about this flower yet. There is no uniformity in prices, partly because no two, perhaps, put the same quantity of seed in a packet. And you may buy your seed of Burpee, or in Boston, or in Worcester, and you will get the same grade of seed. And it is good seed. I would by all means buy of your home seedsmen just as far as they keep the varieties. You may buy the Lottie Eckford, but you will not get it of any house in this country this year. Every seedsman thinks he has it, but he has not. Mr. Eckford, himself, has lost the original Lottie Eckford, and this year begins over again with a new description. You may buy the Miss Hunt. I have two or three different lots of it, but have no confidence in either, and have just sent to English headquarters for it. Our California growers got mixed up on it. One of our best Boston houses last year thought they had the Primrose. As soon as I saw the seed I said it was not Primrose, and they wrote on and found the growers had been misled on that. You may buy the Delight, and you will likely get the Fairy Queen. You may buy the Empress of India, and you will get a mixture of Beatrice and Mrs. Gladstone, and so on. But that is because we are a fast growing country. Our

seedsmen are doing the best they can, and I am sure our California growers will correct these mistakes. The public may lose confidence in a seedsman here and there, but my confidence in their honesty and purpose to faithfully serve the public has gone up several pegs since I came to get a little behind the scenes. One year more will do much to make all the seed grown in this country true to name.

Were there time I would like to say something about *specialists* in floriculture. I would plead for their multiplication. It is indeed almost an infinite word to talk of specialists, yet every flower waits for them, and our best progress to-day is but tardy compared to what it will be when the real era of enthusiasm dawns, and instead of dabbling in a little of everything we each consecrate ourselves with the aim of an artist and the devotion of a scientist to some particular flower. An amateur is one now who amuses himself with flowers. We need a generation of specialists who will concentrate their floral love to a mission to make the most, each of his own chosen flower. I would love to be a specialist in Sweet Peas, but, I confess, I can only play at them. But I have caught a glimpse now and then of what a specialist must be. If he attempts to fill out the full measure of the word, and to get his one flower thoroughly in hand, he will find it is enough for one man to do to just compass the world-wide correspondence that is needed to get at the sources of information respecting his one flower. And, again, it is enough for a man of fertile brain to write what ought to be written to give the public an intelligent appreciation of the beauties and points of merit and of progess of a rapidly developing flower. And then in the direct work of growing the flower at its best, of improving it, of subduing its special diseases, and finding the sure way to destroy the pests that prey upon it, and that more advanced work of the development of new varieties, in which season after season the delicate manipulation of bud and blossom, and the constant watching for results and of variations in nature, and the tireless process of selection, goes on, requiring a keen eye for everything, and an unflagging zeal, requiring the most minute records, and the most classified preservation of everything experimented upon, the range of vision broadening every year, and every year the eye growing keener for observation; this is but a suggestion of the specialist's work, and it is *work*, but it is here that pleasure has its finest zest, and that the most exciting surprises are found, and the keenest senses of the soul are tingled even to the intoxication of delight. The gaping world may call such a man an enthusiast, giving to the word more or less of the meaning that he is

a "crank," but the uninitiated world doesn't know what it is that so absorbs him, he has a little heaven of his own. Mr. Eckford is an old Scotchman, but I think he must have the instincts of the specialist in him. I am told that about all any one can get out of him is, that he will take one of his novelties in his fingers and hold it off like a connisseur and say, "That's a grand flower." He wrote me that he worked seven years on the Sweet Pea before he got any result. It is one of the most difficult flowers we have for hybridizing, and it is no mean monument for a man to produce one new variety that is distinct enough to deserve a name.

Now, I did not finish about the specialist's work. Besides his correspondence and his contributions to floral literature, and practical work at being his own grower, and his skilled work at improving and adding to the varieties, besides all this, there comes in the annual exhibition work, and when one has got a creditable exhibit ready for Boston so as to get it there at 10 A. M., and repeated that experience for other cities day after day, as we ought to do in this country. whatever way he may get his pay back, it is one of the conditions of being a specialist. And then, lest the whole thing come to naught, his work has got to issue in some sort of seed business, the easiest way to do which is probably to gratify the big seed-houses in their incessant demand for novelties, and they are only too glad to have specialists help them out. But it doesn't end so easily as that, for any one who is a successful specialist must pay the price of being importuned for a thousand favors in the way of special seed, special advice, and special interest in every one who writes, even though they forget to enclose a stamp. Well, now, I said I wanted to plead for the multiplication of specialists, but I fear I have beaten a regular "tom-tom" to scare them away. This remains true, that the field opens very wide in this country for specialists. The man who has courage to be one, ought also to resolve to be an absolutely unselfish one, for he has got to do a brave and impartial work in reducing all synonyms to rightful names, in overriding all the selfish schemes of seed-houses to advertise themselves, in frowning upon all premature claims to novelties, and in so respecting the flower upon which he is at work, and the great floral public, that he will tolerate neither in himself nor others anything but honest and meritorious work.

The time is now ripe for a generation of floral workers who are neither amateur amusers of themselves, nor florists governed by a fickle public, but men to set the standard and lay a scientific foundation for the great future before us. I cannot blame our seedsmen

and florists for not helping us in this matter. They are at the mercy of a fickle public. Somebody must call that fickle public to order. A patron comes into a seed-house, and asks, "Have you such a variety of Sweet Peas?" If the seedsman disputes whether there be such a variety he loses his customer. "Yes, we have it," and with a mental reservation he lets it pass as a synonym, and deals out what he thinks the customer ought to have. Years roll on, and that seed-house lets that false name go into their list, and they know it ought not to be there. I write them frequently in a courteous way, and they thank me for what I am trying to do, and look on me as a genuine friend, and I respect them. They want a genuine list of names as much as we do, but somebody has got to protect them from a fickle public, by giving that public to understand the truth of the matter. And, again, our seedsmen have to depend on the seed growers. Where is there a seed-house that knows what the true descriptions of varieties are? Their trial gardens are to see whether their seed germinates. There is hardly a house in this country that can tell the names of one-half the Sweet Peas at sight. They have a thousand other flowers, and how can they know them all in all their varieties? And yet it would be a pity if somebody in this country did not know exactly the name and description of each one of a hundred sorts. Somebody needs to stand between our reliable seedsmen and the public and mediate for them, and hasten the day when the standard list of each popular flower shall be uniform in our seed catalogues, so far as they keep the varieties in stock, and uniformly reliable. The seedsman will go on doing the best he can, and the public will go on suffering disappointment till a race of specialists grow up to watch with impartial eyes the interests of all.

25th January, A. D. 1894.

ESSAY

BY

HOMER T. FULLER, Worcester, Mass.

Theme:—Causes of and Remedies for the Non-Uniform Bearing of Fruit Trees in successive years.

This topic was suggested before the writer had read the able and interesting report of the Secretary of this Society — Worcester County Horticultural,— for the year, 1892–93. Moreover it was suggested for discussion with the hope that some one else, more competent than the writer, would undertake its introduction. I can present only the results of my own observation, very slightly supplemented by the conclusions of others, except as touching the point presented by our Secretary, since my engagements have prevented my thorough examination of the literature of the subject. I apprehend, however, that the literature of the topic is meagre, and that scientific investigation of the subject has scarcely begun. We now really know little more about it than did Mr. Downing forty years ago. In the reports of the meetings of the American Pomological Society I find allusions to it, but no thorough discussion of the subject. Nor has the pomologist of the National Department of Agriculture — a division of the work established only six or seven years ago,—yet, apparently, amid the pressing considerations of diseases of vines and citrus fruits, had time to give to this important theme.

What are some of the facts which demand attention—which, indeed, have received some attention, but which must yet have more thorough investigation?

1. First, that certain regions of our country which formerly produced abundant annual crops of some kinds of fruits now rarely produce any crop of these fruits. For example, on the southern shore of Lake Erie in Chautauqua county, New York, and Erie county, Penn-

sylvania, twenty to forty years or more ago, both the apple and the peach were as certain crops as oats or barley; now there are plenty of thrifty trees, but rarely are they fruited. I have visited this region almost every summer for thirty years, driven about a great deal and seen plenty of evidence of the change. Everyone in the vicinity speaks of it. It is not simply the decadence in vigor and fertility of old trees, but I know an orchard of young apple-trees set out from thrifty nursery stock eighteen or twenty years ago, on ground never before set to fruit, and still as thrifty in appearance as any fruit trees could be, and yet on a hundred trees together, on a fertile soil, I have not been able in any of ten years to find a peck of apples.

I was told that the last summer a Baldwin apple could not be found in Chautauqua county.

2. Secondly, in some regions there are fair crops of fruit three or four years out of ten, and one year in ten the production may be abundant,—the general tendency being to a decrease in production.

3. Thirdly, it is true that some years in large areas, extending over many States, there is a general scarcity of some kinds of fruit, as this year of apples all over the eastern and northern United States.

4. Fourthly, in some localities fruit-bearing is uniform unless prevented by manifest or easily-explained causes — uniformity is the rule, barrenness the rare exception. This is the case with oranges, guavas, lemons, etc., in Southern Florida, and with the same and other fruits in Southern California, with oranges in Crete, figs in Smyrna, and dates in Egypt.

5. Fifthly, it is also true that in a very restricted locality trees of the same kind of fruit and of the same variety, planted at the same time, under the same cultivation, both thrifty, bear very differently.

It is granted that each kind and each variety of the kinds of fruit has, to a large extent, its peculiar habitat, or natural soil and climate. And yet some fruits are very widely distributed, as the strawberry, the cherry, and to a less extent the apple. Some fruits are limited more by soil, others by temperature.

With these limitations, this paper has nothing to do. We cannot go beyond the fact that strawberries do not fruit well on a heavy clay soil, and the other fact that apples love clay and abhor sand; that neither fruit trees nor forest trees thrive where exposed to incessant or frequent gales of wind, and that drought on the one hand and excess of moisture on the other may ruin not only the product, but often the tree itself.

Moreover, we all understand that freezing either the ovary or the

stamens of the flower, or the ripening fruit, will *destroy*, or else very greatly impair, the quality of the fruit. These causes of unproduction are, for the most part, irremediable; we cannot fight against nature, or so alter the courses of the stars.

But there are other causes of barrenness which may be remediable, and others still which, if determinable, may be brought under the same category, and this is the object of our discussion.

1. To begin with, it must be conceded that both Mr. Downing and Mr. Lincoln are right when they attribute a considerable proportion of a growing increase of non-production to the exhausting of certain chemical or mineral components of the soil. Leaves and wood derive their constituents chiefly from the atmosphere and from water,—not so with flowers and fruit,—these tenderest parts must have more solid nutriment, just as the more solid twigs and branches come from the lighter and more tenuous chemical elements. The phosphorus and nitrogen and lime and potash which have been depleted must be supplied. The soil must be stirred that it may absorb oxygen, ammoniacal gases, and the water which carries them all in solution. The success of Florida and California fruit-growing has been considerably due to the fact that this culture has been the chief, I might say, the only business of those who engage in it. Here at the East, it is generally a side-show, or, at best, a partial occupation. Nurseries are cultivated and so are young trees for a half-dozen years, then there is, just so soon as the trees begin to bear, a cessation of cultivation of the soil. With neglect, there is a steady waning of production and, what is more important, deterioration of the quality of fruit. Even in California there is beginning of complaint on both scores. At Riverside, both packers and growers agree that the oranges are not so good as they used to be, even in the best years, and that they are not sure that they know what changes of their methods are desirable: whether nitrogen introduced by Chilian nitrates is needful, as Professor Hilgard suggested, or whether they are irrigating too heavily, or pruning too little.

2. The second cause of non-uniform production of fruit is undoubtedly overbearing in years when all the conditions for fruiting are favorable. The tree which has carried a breaking or a bending burden is like a man who has strained the muscles of his back, or the tendons of his limbs. Months and even years may be required for recovery. there may be needful an entirely new growth of wood before there can be any considerable recurrence of fruitage.

Two remedies have been suggested and, to some extent, applied in

counteraction of the tendency to over-bearing. (*a*) The picking off of blossoms or buds. This is slow and expensive. Spraying to kill the blossoms in part might be substituted. I have not known trials of this. The copper solutions would undoubtedly accomplish it, but it would require considerable skill to apply in due proportion. But the real hindrance to this is the almost universal feeling that a bird in hand is worth two in the bush, and that, we will get the most possible this year and run our chances for the next. We may not live till next year. It is too much a sacrifice of ourselves for posterity.

(*b*) Another remedy is pruning. This is a vexed question. Californians do not prune orange-trees. They may yet wish they had done it. There seems to be a tendency at present among pomologists to discourage pruning of trees like apple, pear and cherry, except to cut off dying or dead wood. My own impression is that we have in our practice gone to extremes, — either have not pruned at all or too much in one year. We may learn a lesson from the breaking down of trees by the weight of clinging ice a few years ago. They recuperated wonderfully, but the new shoots grew so rapidly that they were tender, and could not the next year bear much weight of fruit, neither mature all that clung to them. If new shoots were pruned each year on the same principle that we prune grape-vines — say so as to leave the new wood only a few inches in length, I think it would be a decided advantage. I have tried this with pears to some extent and with Clapp, Bartlett, Beurre D'Anjou and Sheldon, found it useful. The tendency of all these varieties is to throw out long shoots at the top of the tree, especially if the trees are crowded, and then when these trees bear, be it the first or the second year thereafter, they are too heavily laden. A combination of pruning and deflowering might be wisely practiced. Has anyone tried it systematically? I should like to know.

3. Drought in the early part of a season may prevent the development of fruit, or drought in the midsummer may hinder the storing of materials for the next year's crop. There is no question but irrigation for all but the deepest-rooted trees in California and other western States gives fruit growers in those regions an advantage. With water at their command they can adapt its quantity to the needs of the crop and thus secure a perfection in the development of fruit which in the East it is not always possible to attain.

4. The fourth cause to be mentioned is *variability of temperature* at the time of flowering. Frost at this time certainly ruins the prospect of fruit. It may cut off the crop entirely, or it may result in a crop of inferior quality, as in the case of oranges at Riverside, Cali-

fornia, in 1891. But a low temperature, yet above freezing, continued for days, or a sudden reduction of temperature, or changes through a wide range of temperature, may accomplish the same disastrous result. For this cause as for the freezing there is no remedy except the shelter of forests. These are planted in California to protect from cold winds, and on the shores of our great lakes it is a grave question whether this has not been one of the chief causes of the growing infertility of the apple, the pear, the quince, the cherry and the peach.

5. A fifth cause of infertility is *rain* at the time of blossoming. This falling at the maturity of the pollen washes it away, perhaps rots or makes it worthless. Moreover, even if little rain falls, if there is a condition of mist and cloud for several days, the result is the same—the pollen does not mature, the dampness makes the union of pollen and ovule fruitless.

Certain it is that in the West, where there is almost unbroken sunshine and little rain, fruit crops are surer than here, and except as rarely affected by blight of frost, are practically uniform.

Rain also, prevents insects from visiting flowers and the fertilization usually performed by such visitation does not take place. Many authorities believe that the cherry is fertilized only by insects strewing the pollen over the tops of the pistils. If this is true — of which I have some doubts—then we have another factor indirectly hindering the production of fruit.

If it were rain alone that washed away or rotted the pollen, younger and smaller fruit trees might be protected from wet at the time of blossoming by canvas protectors such as are used for hay-caps, but for large apple-trees this plan would probably prove too expensive. Moreover, if we are dependent on insects for fertilization, the shelter-tent plan would prove ineffectual, since if the atmosphere be filled with rain or mist, insects will not leave their shelters to visit the blossoms. And yet I have a strong impression that this question of fertilization is a very important factor in the cultivation of fruits, and that in some way the securing of fructification by artificial means will be a possible attainment. Can we not experiment in this direction?

6. It is certainly pertinent to inquire in this connection whether either too little or too much wind at the time of fruit-blossoming may prevent fertilization. The point is one on which I can present but very meagre data. I have two Beurre d'Anjou pear-trees, one of which is sheltered by a line of higher trees on the north of it and which rarely fruits, the other planted at the same time and almost unsheltered bears fairly well almost every year. A sheltered Urban-

iste has borne only one good crop for ten years; an unsheltered and equally vigorous pear-tree of the same variety has borne at least a fair crop each year since it came to bearing. These two instances are hardly enough to support a theory: perhaps the suggestion may be supplemented by the experience or observation of others.

Notes. [The discussion following this paper was interesting and valuable. Two or three of the participants related accounts of their success in securing nearly uniform bearing of apples and pears by picking off a part of the blossoms when the tree seemed likely to overbear.

Instances were also given of the change in the year of fruit-bearing by the ruin of the crop by frost in the regular year of bearing.

The matter of too much wind or too little wind at the time of blossoming was thought to have little influence on fructification.

The following varieties of apples were mentioned as bearing only on alternate years: Oldenburg, Baldwin, and Holden Pippin; while the Roxbury Russet, Palmer Greening, Rhode Island Greening, Early Williams and Astrachan bear annually.

Apples grown in grass-ground have better keeping qualities,—they mature later.]

1st February, A. D. 1894.

ESSAY

BY

GEORGE CRUIKSHANKS, Lunenburg, Mass.

Theme:—Small Fruits.

The culture of small fruits is a subject of great interest and worthy the attention of all cultivators of the soil, and where the location and soil are favorable there is money in small fruits for the man that is fitted for the business. On almost every farm there may be found soil suitable for their culture. To obtain the best results the land must be rich and in the best possible condition by deep ploughing and heavy applications of good stable or farm-yard manure. It is important that the soil is in the best mechanical condition, so that the roots of the young plants can penetrate the soil freely in search of food. Success depends very largely on the man who undertakes the culture of small fruits as a market crop; he must have a taste for the business, should know the character of his soil, and have some knowledge of the use of fertilizers and their mode of application.

The first fruit of which I shall speak is the *Strawberry;* this is the king of small fruits. The strawberry has been grown in the gardens of the wealthy since the days of Shakespeare. Early in the present century Keen's Seedling was produced in England; this was the type of all our present valuable varieties. The first improved American variety was sent out by the late Charles M. Hovey. The introduction of Hovey's Seedling created an interest in strawberry culture that has continued till the present time. With new varieties came improved methods of culture and a demand for more fruit, so that now it may be said that all our people have their strawberries and cream in their season. The strawberry adapts itself to a great variety of soils. The soil best suited to its culture is a deep sandy loam with a naturally moist subsoil. Such land, thoroughly prepared as advised, will produce good crops of fruit. For field culture the matted row is the usual method; for this, mark out rows with a marker three and a half feet apart, plant from 12 to 20 inches in the row, according to the

variety; set healthy, medium-sized plants; it is important that the soil be well firmed around the newly set plants. As soon as the plants show signs of new growth begin to cultivate and hoe. Give frequent cultivation during the season to prevent the growth of weeds; narrow the cultivator as the runners extend till they cover the desired width. It should be remembered that you cannot grow a crop of grass or weeds and a crop of strawberries on the ground at the same time. Clean culture is one of the secrets of success with the strawberry. After the ground has frozen in the Fall give a light mulch of meadow hay, leaves from the forest, or pine needles. As soon as it is safe in the spring to do so, remove the mulch from the earliest varieties and let it remain on the late sorts as late as possible, so as to retard the ripening of the fruit and extend the season. I have found an increase in the crop by removing the mulch a few rows at a time; give a dressing of good fertilizer, cultivate lightly, and replace the mulch to keep down weeds, preserve moisture, and keep the fruit clean; the result will be larger and finer fruit. When the plants have matured a crop they are in an exhausted condition, and are in a dormant state; if they are to be kept over to bear another crop the mulch should be cleaned off at once, narrow the row a little, apply a dressing of fertilizer, cultivate, and hoe out all weeds; the plants will soon send out a new set of feeding roots and at once begin to lay up stores in the crowns for a crop the following season. Varieties: Beder Wood, Haverland, Eureka, Bubach, Warfield, Leader. For special culture: Parker, Earle, and Belmont. The Marshall for trial.

The *Raspberry* is a profitable fruit to grow for the market. When of good quality it commands good prices. The raspberry succeeds best in rather moist soil; plant in rows six feet apart, three feet in the row; when planting cut off the cane to within six inches of the ground. When the young canes have reached the height of two or two and one-half feet nip out the top, this will cause the canes to throw out laterals, these should be cut back to ten or twelve inches the following Spring. Another method much practiced is to let them grow at will all Summer, drive down stakes in the row, stretch a wire each side to give them support; after the fruiting season is over cut out all the old wood and thin out the young canes if too thick, leaving wood enough to bear a crop the following season, this will give the bearing wood a better opportunity to ripen. Varieties: all things considered, the Cuthbert stands at the head of the list, the Marlboro', Thompson's Early, Prolific, and Golden Queen.

The *Blackberry*. Plant eight feet between the rows, three feet in

the rows; the after treatment may be the same as the raspberry. Varieties: Agawam, Snyder, Taylor.

The *Currant* is well worthy the attention of the small fruit grower, the bush is perfectly hardy and productive, the fruit is applied to so many uses it is always in demand. There is no fruit-bearing plant, tree, or shrub that responds more quickly to good cultivation than the currant; like the strawberry it adapts itself to a great variety of soils, but it succeeds best in a strong, deep, rich loam. Plant strong two-year old plants, five feet apart each way—good crops of currants can be grown in the partial shade of the orchard—the plants should be well cut back when planted, prune annually, keep the head open to admit air and sunlight. Unlike the strawberry, raspberry, and the blackberry the currant can remain on the bushes sometime after it is ripe, and by a proper selection of varieties may be kept well into the Fall. Varieties: Cherry, Fay, Victoria, and White Grape. Moore's Ruby for trial.

The *Black Currant* is not grown to any extent in this country. None of our small fruits yields so rich a jelly or has such medicinal properties as the black currant. Being a native of Russia and Siberia, it is among the hardiest of our fruit-bearing plants; it is productive, bears heavier crops than any of the other varieties. The planting and after treatment may be the same as the red and white sorts. Varieties: Black Naples and Lee's Prolific.

The *Gooseberry* is the finest green fruit that appears in our market, of home growth, and is much sought after for cooking purposes; it is of easy culture, hardy, and productive. The gooseberry requires cool, rich, moist soil, the planting and after treatment may be the same as for the currant. I prefer the fall for planting all the bush fruits, give a mulch of well rotted manure for the Winter, and they will start with vigor in the spring. They are all benefited very much by a mulch in the Summer; especially the currant and gooseberry should be mulched heavy to keep the roots cool and moist. Varieties: Downing and Houghton.

The critical time in the culture of small fruits, especially the strawberry, is when the fruit is swelling and approaching maturity. In the absence of artificial irrigation I have found deep ploughing and heavy manuring the best protection against drought. It should be the ambition of every fruit-grower to produce the best, and only the best that can be grown. Gather your crop carefully, grade and pack honestly in clean, neat packages, put your crop on the market in the most attractive form, and success will be yours.

8th February, A. D. 1894.

ESSAY

BY

ROBERT FARQUHAR, Boston, Mass.

Theme: Bulbs and Tubers.

I propose giving you some particulars of a recent visit to Holland and the famous bulb gardens in and around Haarlem, and I shall endeavor to describe the methods of cultivation practised by the leading Dutch bulb growers. I shall not occupy your time with any remarks upon our voyage across the ocean and the strange mixture of discomfort and pleasure experienced by every passenger on an Atlantic steamer. Suffice it to say that on the gray of a July morning we sighted the Dutch coast. The land lay before us, flat and low, like a great green sea on which the huge sails of numerous windmills seemed to take the place of the sailing craft on the blue sea behind us. To reach Rotterdam we sailed up the river Maas several miles.

All along the sides of the river heavy stakes or trunks of trees are driven about a foot apart to protect the banks. In many places strong willows are also worked in, basket fashion, as a further protection; the protruding tops of the stakes being the framework. On the banks grow the dyke grass, the roots of which band themselves together inseparably, holding the loose sandy soil in place. This grass is planted on nearly all sea, river, and canal banks in the Netherlands. Proceeding up the broad river numerous evidences of the patient industry of the people are presented. On either side the low, level fields stretch for miles, intersected by ditches and canals. Everywhere the cultivation seems almost perfect and the crops are exceedingly luxuriant. Large herds of black and white cattle, numerous windmills, and here and there a canal boat moving slowly along pleasantly relieve what would otherwise be a very monotonous landscape. At length we enter the harbor of Rotterdam, which, for Holland, is quite a large and stirring city.

A walk through the principal streets of one of the large Dutch cities is full of interest. As a rule wide canals occupy the centre of all the main streets. These canals are the chief highways of the country. They extend in connected systems all over the land, and most of the produce is conveyed to the city markets by boats, on which the owner and his family live a great part of the time. The canals afford the boatmen almost as good an opportunity of selling their products as our market streets do to our farmers. Once in the city the boat is guided to its location, tied to a convenient stake, and there it remains till its load is disposed of. Firewood and dried peat in the form of bricks, for fuel, are brought from far back in the country; also hay, vegetables, and fruit. A line of boats extends along the canal sides, and purchasers, as they pass along, can tell where to find what they want, by the little piles of merchandise placed on the wharf or street opposite each boat. Vegetables are hawked about the streets on two-wheeled hand-carts pushed before the owner. One of the first sights which met our eyes after landing was a hand-cart full of magnificent heads of cauliflower. The cart was in charge of a woman who pushed it along in a very business-like fashion, but her labors were very considerably lessened by the work of two large dogs yoked to the axle.

It is a strange sight, but throughout Holland, particularly in the country, women are seen taking a hand with men in many kinds of out-door farm work, such as hoeing, weeding, ploughing, boat hauling, and so forth. As a consequence they are strong and healthy in appearance, but far less refined and intelligent than those occupying a corresponding station in New England. Passing along towards the suburbs we note everywhere the beautiful deep-green color of the grass and foliage. Roses, pansies, geraniums, and yellow herbaceous calceolarias are seen in perfection of color in well-kept gardens. Among vegetables we particularly note the excellence of the cauliflowers. It is a sure crop in Holland; the cool climate and a soil which is always moist, but rarely or never too wet, seems to suit it exactly.

But Haarlem and its bulb gardens interest us chiefly at present, so we leave the city with its quaint buildings and old churches. The road over which we are driven is paved throughout with dressed stones. The ever present canal runs alongside, wide enough for large boats to pass on their way to and from town. One of these passes every now and then laden with country produce, and is pulled along by a horse walking on the roadway. Occasionally the owner or his wife does the

hauling, as for instance at feeding time, when the horse passes on to the boat and enjoys his hay and a sail at the same time.

Wherever we look the landscape has the same level appearance, and the soil is loose, sandy, and fine. We pass windmill after windmill, each with four huge sails, often measuring 50 feet from end to end. These mills are used for a variety of purposes, such as grinding grain, sawing timber, etc., but chiefly for pumping water from the small ditches which drain the fields into the large canals. When completely equipped with machinery they are quite costly. Standing on the road we counted 25 in sight at one time. Farming is the chief occupation of the country people, and grass the principal crop raised. The implements and tools in use are very clumsy and heavy, and as we see the farmers at work, moving leisurely about in their great wooden clogs or shoes, we wonder how they can keep their farms in such excellent condition as is almost uniformly seen.

The district in which bulb growing is carried on is of comparately small area. The ancient town of Haarlem is its centre. It is a very quiet old place, with many buildings of curious architecture. Many of the bulb merchants have business offices in Haarlem, but the grounds where most of the bulbs are grown are several miles out of the town. One class of merchants own extensive and valuable gardens and grow the bulbs they sell, or make contracts with raisers for them. We find also in Haarlem another class of dealers who issue catalogues, but who grow few or no bulbs and own no gardens. These pick up their bulbs where they can get them cheapest; sometimes at public sales; at other times of country farmers who make a business of raising. Large quantities of their bulbs annually reach this country, as the price lists are well gotten up and circulated widely among dealers. Bulbs can be purchased of this class of dealers at a low price, and often give as good satisfaction as those from growers, but they are not to be relied upon. Even by a visit to Haarlem one is not always sure of getting the bulbs shown unless he knows the grower to be reliable. We know one gentleman who, visiting Holland at the season of flowering, was invited by a Haarlem dealer to ride out and see his tulips. He went and was delighted. The flowers were all that could be desired. A day or two afterwards he was with another dealer who invited him to visit his bulb gardens a short distance out of town. Fancy his astonishment when he was driven to see the same tulip grounds which he had been shown by the first dealer! The fact was that neither of the two owned them. They were the property of an old Dutch gardener who sold his crop to the local dealer who would

pay the highest price. He of course well knew the inwardness of these visits, but it was for his interest to say nothing.

Many of these farmers raise more bulbs than some dealers who issue catalogues, but from want of enterprise or lack of education have had to depend upon their home markets. They have confined themselves to raising a few leading varieties, usually of hyacinths or tulips. Education and a knowledge of English have of late become more general, and, consequently, in the past ten years, many of those who grew for the Dutch houses are offering their bulbs in the American and English markets. This lively competition has caused a great decline in prices, much to the annoyance of the wealthy old planters, who for many years reaped a rich harvest of golden guilders unmolested in their monopoly. It must be acknowledged that they still have advantages in the business. They own the land best suited for raising the various kinds. Most of them are wealthy, and growing in immense quantities they can afford to send older and better bulbs than mere speculators. The gardens now cultivated by the best growers we met with in Holland have been owned by members of the same family for many years, in some cases nearly two centuries.

Pardon a word of caution here to any who may think of visiting Holland at some time to purchase. When you get to Haarlem do not disclose your business to the first dealer you meet. If you buy largely he will exert himself to the utmost to interest you. He will show you how bulbs are propagated, cultivated, and cared for through all the stages of their growth. After one whole day spent at his residence, gardens, and storehouses, his carriage will be at your hotel the next, before you are up, to take you to see some of the sights, which he informs you no one ever misses who has time to enjoy them. In short, if he wants you for a customer, he is pretty sure to monopolize all your time so that no rival dealer gets a chance at you. When in Holland we visited a number of the leading gentlemen engaged in bulb growing. They are, indeed, a fine class of men and as unlike the Dutchman of our picture books as can be. Nearly all were gentlemen of wealth, education, and refinement, who seemed to enjoy life to the full. They own large and fine residences and are very hospitable.

The bulb gardens of the large growers are all of the same general appearance. Fancy a field from 15 to 25 acres in extent, perfectly level, but cut up by ditches and wider canals into numerous rectangular patches. Every 200 yards or so we cross a canal large enough to float a boat, the bridge over which we pass being raised to allow boats go to and from the fields. These canals are met at right angles by

smaller ditches, 40 or 50 yards apart, which are so narrow that one can step across. As there is always water in these the fields never get very dry, but the soil being exceedingly porous and sandy surplus water rapidly drains off. Only in seasons when heavy rains occur late in Spring are the bulbs likely to suffer from too much moisture; they will then ripen very late and, being soft, keep and ship poorly.

These canals usually connect with the nearest commercial canal system, and the plan of their arrangement is such that manure can be carried to all the fields from the barns, and bulbs and other crops to the various stores or bulb magazines, in boats. The surface of the fields is about two feet above the water in the canals and ditches.

At each end of the large plats are holes, in which barnyard or cow manure is left to rot in readiness for digging. It is brought from the yards in boats and pitched direct into the holes. It is distributed over the fields from carts with very broad wheels, before digging time. All the manure used in the bulb ground is old, thoroughly decomposed, and fine. The soil is so very light and free from stones that a great deal of the work of planting and lifting is done by hand, without the use of tools. One of the workmen usually accompanied us as we examined the bulbs, and frequently scooped out with his hand in a moment a row of a dozen or more hyacinths planted four inches deep. The soil is in fact a fine sand; evidently stream deposits. It is enriched with liberal quantities of old manure. The light colored, fine, sandy soils are best suited for the cultivation of hyacinths, tulips, crocuses, and narcissi. Spireas, dielytras, lilies of the valley, and others of that class require the darker, heavier soil, also found in the vicinity of Haarlem. In order to secure healthy bulbs it is found necessary to alternate crops. Thus hyacinths are usually followed by a crop of potatoes, these by a crop of tulips, then potatoes again, followed by narcissi or crocuses. The fine roots of the potato, decaying in the soil, leave there a necessary element of bulb food. All work of these gardens is done neatly and systematically. The bulbs are usually planted in beds of an exact width, the lines containing exactly the same number of bulbs. Almost invariably the whole establishment bears a well cared for appearance. From early Summer till Autumn work is begun daily at about five in the morning and ceases about seven at night. Women and men are employed in about equal numbers. A dining-hall is a feature of every large establishment. To it all hands repair four times daily to partake of coffee and other drinks provided by the employer, the work people bringing their own lunch baskets. Sufficient time is allowed at meals, and I cannot remember

seeing anybody making much haste at any time during our visit, but none were idle, and the work people appeared happy. Most of them live in cottages in the gardens, each with a neat garden adjoining.

The magazines for storing marketable bulbs are situated by the sides of the canals, and are usually erected alongside of each other and connected by broad passage ways. One of the best arranged we visited had light rails along the passages, on which hand trucks large enough to hold about three barrels full could be driven easily by hand to any part of the buildings. Thus as the boats arrived from the grounds the baskets of cleaned bulbs were lifted from the boats on to the trucks, which when loaded are pushed along the rails to the place where they are to lie till packed for shipment. Sorted hyacinths are all kept in one section, laid in regular rows, one deep on the shelves, which are about seven inches apart. Tulips will be found in another section, double and single varieties being in different parts. Other leading species of bulbs, such as narcissi, scillas, crocuses, etc., are in their allotted section. All are carefully named and labelled; the varieties of the species being kept distinct by means of movable blocks of wood. All other bulbs with dry roots are stored before shipment in a similar manner.

We shall now endeavor to describe somewhat minutely the manner in which one or two of the leading species are propagated and cultivated. We select the hyacinth as being particularly interesting, and also on account of its great value as a decorative plant at a season when other flowers are not over plentiful. In Holland this flower is grown entirely in sand as fine as meal, old decomposed cow manure in liberal quantity being placed underneath or mixed with the soil before the bulbs are set out. The peculiarities of the soil and climate of Holland are more favorable to their production than any other section. The original of the Dutch hyacinth, *Hyacinthus orientalis*, is a very insignificant plant, bearing on a spike a few small, pale blue, single flowers. From this small beginning, as cultivated more than 300 years ago, we have, to-day, over 500 varieties of nearly every color, many of them charmingly beautiful and nearly all of easy cultivation. We have a record of the existence of six single varieties in the year 1597. Towards the close of the seventeenth century double flowering sorts began to appear, and for many years the double form was most esteemed. In 1754 an English writer described upwards of 50 single varieties and 90 double. At that date favorite sorts were sold at extravagant prices. One white variety, La Reine des Femmes, sold for 50 guilders a bulb on its first appearance. A double blue, Over-

winner, then cost 100 guilders a bulb, while another, Gloria Mundi, cost 500 guilders, equal to $200 of our money, but, as values were at that time, much more relatively. These prices are taken from a Dutch grower's catalogue of 1754, and are not figures from fancy. In 1755 we have the first record of their being grown in glasses.

Of late years single flowered sorts have been most popular, and few will question the justice of the preference. In some of the newer varieties a great improvement has been attained in the size of the individual flowers, the breadth of their lobes, and in brilliancy and depth of color.

New varieties are produced from the seeds of fertilized flowers. Clear colors are selected for crossing. The seed is sown in August, sometimes in pots, but generally in specially prepared beds, in which the growth and strength of the new plants are greatly promoted. The seed beds are protected by straw during Winter and the plants show themselves in early Spring. The bulblets are lifted about midsummer, placed under cover and allowed to dry off with the leaves on. In September they are replanted in poor, sandy soil, underneath which is put a foot of the richest material possible, consisting of cow dung, river mud, and sand. The Dutch growers are particular not to allow any manure to touch the bulbs. They rest in clear, sharp sand, with which they are also covered. This treatment results in the bulbs produced being shapely, clean and hard skinned. The sand also serves to protect the bulbs from the attacks of insects; its sharpness hinders their approach. It may be well for us to remember this fact in planting other bulbs besides hyacinths and tulips. Hyacinths usually bloom at four years from seed, but a five years old bulb gives better and stronger flowers.

The great bulk of hyacinths are grown from offsets or small bulblets obtained by cutting large bulbs and growing them one year. Several methods are in practice for obtaining these offsets. In the case of old, well known sorts, for which there is a sure demand yearly, the old bulbs are cut so as to produce the largest bulblets the first year. If the variety to be propagated is rare and costly the bulbs are cut so as to produce the greatest number of bulblets. These last will be so small that they must be grown five or six years before they are of marketable size. The method commonly practised is to cut the old bulbs twice at the base. This is done in June or July. The bulbs are then laid on shelves, where the sections cut, partly open and in five or six weeks a small bulblet will be found formed at each scale where cut. The mother bulbs are planted in September, about seven

inches deep, to be lifted early in the following Summer. They throw up a few stray leaves only, all their strength going into the bulblets. Bulbs so propagated are fit to sell in four years; they are then at their best and will deteriorate afterwards, becoming divided and entirely useless for sale.

There are two methods of cutting practised to obtain a great number of bulbs from one. Some scoop out the whole of the base of the old bulbs and so attain their object. Others cut the bulbs in two or three pieces and get an enormous number of very small bulbs, which will not be at their best till grown up six years.

Hyacinth culture in Holland is by no means a pastime. They require great care at every stage, particularly those which are to be sold in the Fall. These when lifted from the ground are laid, with roots and leaves still on, on shelves and covered with dry sand for about ten days. This care is necessary to give the bulbs that fine, clean appearance and thorough ripeness and solidity which is desirable. They are then cleaned and carried in padded baskets to their place in the magazine. There they must be watched and cared for, dry rot or other disease often attacking them, particularly after a wet Spring. Most of the hyacinths leave Holland in August. They are shipped in immense numbers to Russia, Germany, France, America, and England. On account of the laws regarding phylloxera, none are admitted into either Italy or Spain. In England they are very popular as window plants. One grower for Covent Garden Market last year planted 50,000 bulbs. With the people here they are sure to be popular, when it becomes generally known that little skill is required in their cultivation, if supplied with plenty of water and fresh, cool air.

Hyacinths in Holland are never allowed to freeze in the beds during Winter. They are covered with straw to the depth of six inches and keep rooting all Winter. The climate is, of course, much milder than ours, 20 degrees of frost being considered Siberian weather.

With tulips, as with hyacinths, new varieties are obtained from seed. Selfs of the purest color are used for crossing, and only those of the most perfect form of flower.

All the varieties of tulips in commerce are increased by offsets. A number of these are usually found at the base of each mature bulb after flowering, also one or two large flowering bulbs. These flowering bulbs lie close to the stem and are usually marked by it. In this way one can almost certainly distinguish flowering bulbs. Tulips are lifted from the bed as soon as their leaves turn yellow. If allowed to stand longer the bulbs get soft and the skins come off. Under some

circumstances it is necessary to lift them before the leaves turn. There is no danger of injury to the bulbs when lifted soon after the petals drop, if properly done. They are removed to some perfectly dry shed and covered with earth for eight or ten days. At the expiration of that time they will have ripened fully, the leaves and roots will have become dry and the bulbs ready to clean and store.

In Holland, when it is desired to produce blooms of the greatest excellence for exhibition, great care is given to the preparation of the beds. The natural earth is removed to the depth of 18 inches; six inches in depth of manure is first put in and the bed is then filled with a mixture of old manure, loam, and sand which has been turned frequently in sunny weather to kill the worms. Sifted sand surrounds the bulbs, which are planted in October four inches deep. Before being set the skin is slightly raised from the base of the bulbs to permit the roots to escape more freely. As the season of flowering approaches a raised covering is put over the beds so that the flowers are protected from injury by rain and direct sunlight. In this way they are made to last in bloom as long as a carnation, and their size and color are enhanced and intensified. The history of the tulip is an interesting one, and although the time is long ago past when fortunes were spent in the purchase of a few coveted bulbs, their real beauty and worth have never been more generally acknowledged than at the present time.

Much might be added of interest regarding the cultivation of the narcissus, crocus, lily, and other bulbs in Holland, if time permitted, but the varieties described must suffice at this time, and I hope some of the remarks may have proved of interest.

11th February, A. D. 1894.

ESSAY

BY

E. I. COMINS, Worcester, Mass.

Theme:—Parks at Home and Abroad.

Boston has long been a noted city, not only of our own State but of the United States. Few things have given it a wider reputation than its magnificent "Common" of 50 acres, set apart by the wisdom of the early settlers and planted with trees. It has been the pride of Bostonians these many years, and now, while younger cities have set apart larger tracts and lavishly expended money in improving and beautifying them, Boston Common, with the addition of the "Public Garden," holds no mean place when compared with the parks of other cities. There can be no more delightful stroll on an early summer morning than from Beacon Hill to Copley Square through the Public Grounds.

In 1892 the Legislature of Massachusetts established a Parks Commission, to make provision for the future of Boston and its growing suburbs, and in securing about 4,000 acres in one body, embracing the region known as the Blue Hills of Milton, there can be no question but that they have acted wisely. When the barren spots shall have been planted with trees and shrubs, and walks shall have been constructed through all parts, and mother nature has had her way for a few years, assisted by man, this will become one of the grandest parks in the country. The poet, the artist, the lover of nature, whoever he may be, will here find satisfaction to his soul.

Until New York had its Central Park the metropolis of the United States had nothing to compare with Boston Common, but these 840 acres, upon which mints of money have been expended, have become one of the leading parks in the country, and no visitor to Manhattan Island fails to spend at least one day among the riches of nature and art there exhibited.

Fairmount Park of Philadelphia, containing nearly 3,000 acres, bordering two rivers, has natural advantages which are rarely excelled; adding to these the development and beautifying of many years, together with the fact that the great exposition of 1876 was located here, and Fairmount becomes national in its character. A writer says of it, "I have seen almost all the European parks of the great cities and there is not one that for original beauty can compare with Fairmount."

But "Westward the course of empire takes its way," and beside the beautiful waters of Lake Michigan stands the city that for a quarter of a century has been the wonder of the nation, and now is the wonder of the world. The years compassed by many of us have witnessed its entire growth. Not the least among its wonders are its parks, of which it has more than 2,000 acres. Jackson Park has become identified with the history of the world. To blot out the memory of it would efface from hundreds of thousands the one greatest event of their lives. But of this time forbids me to speak, and besides many of you saw it and the marvels it contained.

Scarcely a mile west of Jackson Park is Washington Park; in some respects perhaps it is unrivalled in the world. Certainly, in a somewhat extended trip through older countries, I saw nothing equal to the artistic effects produced with flowers and foliage plants in this park, and no hour spent at the Columbian Exposition was more thoroughly enjoyed than the hour at Washington Park. These artistic displays are said to be annually repeated with new designs and new beauty, so that the visitor to Chicago in 1894 will see as great beauty in this park, from June to October, as was seen in 1893.

Another notable park in Chicago is one named in honor of our martyred President, and situated in the northern part of the city, on the lake front. Lincoln Park contains 250 acres, beautifully laid out and ornamented, and is particularly noted for several fine works of art, one of which, the statue of Lincoln by St. Gaudens, is pronounced by some to be one of the finest pieces of modern sculpture in the world.

In our eastern or western cities it is comparatively easy to produce trees, shrubs, and flowers with the skill and labor money will command, but to reclaim a sandy, barren waste, where absolutely nothing grows, and where the winds of heaven drive hither and yon great banks of sand, as the winter's snows are driven over our New England hills, is quite another thing. Such, a few years since, was the condition of a large tract lying between San Francisco and the Pacific. This territory is some three or four miles in length and one-

half to three-fourths of a mile in width, containing over 1,000 acres. On much of it absolutely nothing formerly grew, as every changing wind produced a corresponding change in the surface. On other portions, less subject to change, there was a low growth of the poison oak, and perhaps other undesirable vegetation. Between this tract and the Pacific is a range of hills which protect it from chilling sea breezes.

"Beyond the town, the bushy mounds between,
Roll drifts of yellow, wrinkled sand—
Uncrested waves, that dash against the green,
Like ocean billows 'gainst the land."

The barren portion was first planted with wild lupine and a European sea beach grass, *Arundo arenaria*, to hold the surface from blowing about; then a species of pine and certain shrubs were set and watered, until their roots took possession of the surface and their tops furnished shade, giving other vegetation needed protection. Thus this unpromising tract has been conquered with all the stratagem of war. Its surface now gives no indication that immediately beneath the velvet lawns and flower beds, such as California alone can produce, there is nothing but sand. More than 100,000 trees of many species have been set, and the growth of a few years is simply astonishing. It is claimed there is now a greater variety of vegetable life here than in any other park in America. The situation of this park is perhaps unequalled for a climate peculiarly adapted for a great variety of plant life, as in the summer its contiguity to the ocean brings cool breezes therefrom, and in the winter the Japanese current brings the warm water of the ocean to these shores, softening the breezes as they are wafted upon the land, so that in the park it never freezes and is never sweltering. In the park, miles of the finest drives have been constructed; these are kept constantly watered and speed is regulated, except on one stretch of 6,000 feet, where Jehu is allowed full liberty. Several monuments have been erected here in memory of men of note; the finest of these is one erected to the memory of Francis Scott Key, author of The Star Spangled Banner, the late James Lick having left by will $60,000 for that purpose. This beautiful Golden Gate Park lies about four miles from the business portion of the city and is connected therewith by fine lines of street cars. Many thousands often visit it in a day, and find here a most charming spot for recreation, as there is nothing but beauty for the eye, and Saturday and Sunday afternoons a large band discourses the sweetest music for the ear. In fact, this park, with its drives,

walks, magnificent flowers, its finely kept conservatories, music, and other attractions, is almost worth a journey across the continent, especially at the present time, as it is the seat of the California Mid-Winter Exposition.

I am not unmindful of the parks of Baltimore and Washington, with their wealth of beauty and art, nor many other American parks which do honor to the cities where located and to our nation. To our own city and the work done in beautifying it and educating our people to become lovers of nature and co-workers with her in beautifying our homes and our landscapes, I propose to refer later.

Saturday, July 2, 1892, with others I landed at Queenstown and, as the sun was sinking behind the western hills, we went by rail up the valley of the Lee, eleven miles, to the city of Cork. Never was scenery more beautiful.

To us, just escaped from the restraints of a crowded vessel, old Ireland seemed like one great park, and two days later, as we journeyed 137 miles by rail, to Dublin, with flag, horn, and fire-crackers, giving the sons of Erin, who stood with mouths gaping wide, a faint idea of an American Fourth of July, we did not see much reason for changing our opinion. We were on the Emerald Isle and nature had done her part in making everything beautiful. I must add here, for the benefit of this society, that in Ireland we found the finest and sweetest strawberries we had ever seen. They were placed on the table without having the hull removed, and were eaten without sugar or cream; they were simply delicious.

In Dublin we visited Phœnix Park, which contains 1,750 acres, is beautifully laid out in drives and walks, shaded by luxuriant trees, and has several costly monumental piles, though the finest monuments in Dublin are generally located in the public squares. Lord Cavendish, Chief Secretary of Ireland, was murdered in this park, May 6, 1882, the day of his arrival in Dublin. The spot where he was slain is marked, and we felt an interest even in that, as a few days later we were to visit the beautiful estate at Chatsworth owned by the Duke of Devonshire, his brother, and the churchyard where his ashes were deposited.

Dr. Walsh, who travelled extensively in Europe, says of Phœnix Park,—"Viewing all the particulars which should distinguish a place set apart for public recreation, Phœnix Park, on the whole, would not suffer in comparison with any other in Europe."

The Wellington testimonial, a huge monumental pile near the entrance to the Park, the total height of which is 205 feet, with a

very broad base, struck me as having a certain beauty and grandeur in its massiveness, but it is spoken of by a writer much more capable of judging than myself as follows,—"It is an ungainly and ungraceful example of bad taste as the kingdom could supply."

A few days later, after passing the great natural parks, including Loch Lomond, Loch Katrine, and the Trossachs, we stood on Stirling Castle as the sun was sinking in the west and saw one of the most magnificent views possible for the eye to look upon. It was not a park as we use the term, but nature and man had combined to produce the effect. Mountain, hill, valley, castle, and monument, green fields and hedges, and even the fields of Bannockburn lay spread out before us. No wonder Victoria said, as she stood on the battlements and cast her eye over the beauty that lay spread out before her, "It is the fairest scene in all my realm."

We enter England; its green meadows, winding rivers, well-trimmed hedges, beautiful oaks, elms, and other deciduous trees, now rich in foliage, all combine to please the traveller.

The Duke of Devonshire is one of the richest men in England, having the inherited wealth of many generations. He is the owner of Chatsworth, where he spends a few weeks each year, but he kindly allows his palace and grounds to be enjoyed by the public, with only a few necessary restrictions. The palace, for it is nothing less, is in the midst of a beatiful park of 1,200 acres, on both sides the river Wye. In the luxuriant green meadows, dotted here and there by grand old trees that spread their giant arms, rich with foliage, to shade the quiet herds of cows and fallow deer so peacefully reclining beneath their shade, we had a scene worthy the finest landscape painter who ever drew the brush. The palace, through which we were kindly shown, is one of the finest in Europe. It is filled with the choicest works of art. The gardens outside are in keeping with everything else. The conservatory was planned and constructed by the wisdom of Sir Joseph Paxton, afterwards the architect of the celebrated Crystal Palace at Hyde Park, in which was held the great world's exhibition of 1851. The conservatory covers only about one acre of ground, but it contains some of the finest specimens of choice exotics from all the warmer countries of the world. The appliances for heating are said to be so arranged that each species flourishes in its own temperature without intervening partitions. The building contains seven miles of six-inch piping, chiefly used for heating purposes. Outside are some very fine fountains, one of which, named the "Emperor," in honor of Nicholas I. of Russia, who once visited the

Duke, is said to be the finest in the world. The day we were there the mother and sister of the Duke were visiting him, and all the waterfalls and fountains were playing in honor of the event.

There are special gardens of great beauty, the Oriental garden, the Italian garden, and the French garden, each with some peculiar features, all highly ornamented with works of art as well as by their beautiful and varied vegetation. In the orangery are splendid specimens of camellias, oranges, and rhododendrons; one of the latter, imported from Nepaul, has been known to have 2,000 blooms on it at one time.

From time to time this beautiful place has been visited by emperors, kings, and princes, from many countries, and some of the trees here growing were planted by royal hands.

Groups of statuary by noted sculptors adorn the grounds, and all that genius and wealth can procure have been gathered for these many years, until there is profusion seldom equalled, and all freely opened for a party of Americans to enjoy. Surely the courtesy of the Duke is commensurate with his wealth.

Before leaving this subject I must speak of the beautiful village of Edensor, called the "model village," situated within the park and occupied by the dwellings of the employés of the Duke. The houses are all neatly built and the grounds are adorned with shrubs and flowers. A tasty gothic church, with its spire pointing heavenward, adorns the green, and in the churchyard is the tomb of the late Duke of Devonshire and also that of Lord Frederick Cavendish, who was assassinated in Phœnix Park, as before noted.

In one of our trips we stopped at Stoke Pogis and visited the churchyard immortalized by Gray's Elegy. This really is within an immense park, in which the red deer were quietly grazing with no fear of man as an enemy. The walk from the highway through the churchyard to the church was lined on either side with the most beautiful roses we had ever seen in such quantities. They were of all colors and of immense size. In the yard were those "rugged elms" and "that yew tree's shade"; there, too, were "those mouldering heaps," and that "ivy mantled tower" still, perhaps, furnishes a resting place for the "moping owl." Doubtless, too, as the sun sank in the west, "the lowing herd came winding o'er the lea."

London has some famous parks and is somewhat famous for its parks. What would that immense city do were it not for these "breathing places!" How did it come to have so many? Royalty, wealth, and the Church have all contributed, either directly or indirect-

ly. Some of these tracts were formerly large preserves for game, where only royalty and wealth were allowed to roam and hunt. Hyde Park was once the property of a monastery and, if I remember right, was confiscated, and after many changes became public property.

St. James Park, once an uninviting tangle of wood and marsh, was given up to a community of lepers, not being considered suitable for anything else. Other parks, by the law of primogeniture, remained intact in the hands of one family for many years until wanted for park purposes.

But even London now needs more parks. One writer says, "Still as we well know, in the outskirts, those working men who love a country walk, turning up some narrow way can find a few fields to wander over; there you may see them on Saturday or Sunday with their sturdier children or perhaps with wife and baby too, taking a happy stroll; the little ones with pleasure gathering buttercups or running merrily on the grass." "Year by year these walks are turned into 40-foot streets, houses come, and the walks are gone." Surely, here is a lesson for each generation in Worcester.

For many years the monks held undisturbed possession of Hyde Park. After it became public, armies took possession of it during the civil wars, once so destructive in England, were reviewed in it, and marched through it on their way to the conflict. Later wealth and its votaries monopolized it; but now, in the process of evolution going on in society, it has become the grand resort of all classes, and armies of the common people, men, women, and children, flock thither daily in pleasant weather, especially on holiday occasions. One says of it, "With fine expanse of grass, its bright flower-beds, and clumps of shrubbery, its noble old trees, its beautiful ornamented lake, the Serpentine, its broad avenues crowded with equipages, its Rotten Row [*Route en Roi*, way of the king] alive with equestrians, its walks lined with thousands of loungers of various nationalities, professions, and grades of social position, Hyde Park, in the height of the season presents a scene which, in the brilliancy of its *tout ensemble*, and its peculiarly mingled contrasts can probably be paralleled nowhere else."

Adjoining Hyde Park are the Kensington Gardens, comprising some 600 acres, more thickly planted than Hyde Park, and containing avenues of rare plants and flowering shrubs. In these gardens are found many aged and venerable trees, giving, in some portions, the appearance of the last century.

Kew with its gardens and glass houses, some six or seven miles from Charing Cross, has many attractions. A French writer says,

"It is the finest botanic garden in the world." A large part of the plants here raised have to be grown wholly or partially under glass, hence there are many houses for this purpose, some of them very large, and one, the Palm House, is of itself a Winter Garden. In this house the problem of modifying and regulating the heat rays of the sun seems to have been solved by the use of colored glass. These grounds are free to the public and are largely frequented by the middle classes.

Regent's Park contains 470 acres and was used in Elizabeth's time as a hunting ground. It contains at the present time the gardens of the Zoölogical Society and those of the Royal Botanic Society. The latter holds meetings of great interest, for reading papers and discussing subjects connected with botany and kindred matters. Their gardens contain about 18 acres, in which are 4,000 or 5,000 species of hardy herbaceous plants flourishing in open air, and glass houses containing about 3,000 more. In May, June, and July floral exhibitions take place, and 3,000 medals are distributed, ranging in value from a few shillings to £20 each. One thousand pounds are annually spent in encouraging the growth and acclimation of rare plants. The Zoölogical Gardens contain one of the best collections of animated nature in the world. The individuals of this collection are kept under their native conditions as far as possible.

Besides the London parks already mentioned are many others, generally smaller than those mentioned, the whole within the Metropolitan District embracing over 3,000 acres.

Hampton Court Palace and grounds connected therewith, situated some 12 miles up the Thames from Hyde Park, are of great interest. In the court the grass is kept so as to make a perfect velvet lawn, and in this lawn designs are cut and filled with blooming plants, the tuberous begonias being used to perfection. Adjoining these grounds is Bushy Park, with its celebrated avenue, more than a mile in length, 200 yards in breadth, and lined on either side with five rows of magnificent horse chestnuts, very tall and rich in foliage. The horse chestnut seems to be a favorite shade tree, both in England and France, evidently growing with much more luxuriance than in New England. Near the palace is the celebrated "Maze," a labyrinth of walks bordered with shrubbery and flowers, and if one attempts to "thread" it he is very likely to seek aid that he may find his way out.

England, with its moist climate, is peculiarly adapted to the growth and maintenance of beautiful public and private grounds, and the tastes of the people, cultivated for many generations, lead them to

make the most of their advantages. Go where you may you see that nature and man have united to give beauty to the little garden patch, the broad field, the extensive park, and the grounds of wealth and royalty.

We go across the Channel into France and there is a change. You see the little cluster of cottages, with their red roofs huddled together with a church spire shooting up from their midst, always neat and tidy; but the broad acres do not have that park-like appearance we saw in England. Each peasant here, as a rule, tills his own acres, which are few, and the support of himself and family depends upon the number of francs he can realize from his toil, while in England the broad meadows belong to the landlord, whose wealth enables him to devote much to the beauty of the landscape. How fortunate it is that the eyes of the poor are as good as those of the rich, and they can drink in and enjoy in a great measure what the selfish heart might be glad to reserve for itself.

When Napoleon III. was on the throne of France he determined to add the charms of an English park to the attractions of Paris. The result may be seen in the beautiful Bois de Boulogne. The territory occupied by these gardens was formerly a forest, to which little had been done by the hand of man; but a great transformation took place. All that the skill of man could suggest, with unbounded wealth, has developed this tract into the finest public grounds of the finest city in the world. It is related of Mahomet that, journeying towards Damascus, he came in sight of the city and stopped, refusing to go forward, saying, "It is given man to enter but one paradise and if he enter one on earth he can never enter heaven." In going through the Bois de Boulogne one can feel the golden streets of the New Jerusalem can hardly be finer than this. The entire area of this park is said to be 2,158 acres, one-fourth of which is turf, one-half woods, 70 acres of water, and the balance shrubbery and flowers. Here are found the gardens of the Acclimatization Society, with their menageries, conservatories, and aquariums, all of which are largely visited by the populace seeking pleasure. A striking feature of the Boulogne is the grouping of vegetation for effect, by placing in one place conifers, in another magnolias, and so on, rather than attempting to make all points beautiful by mixing varieties. Some one says, "As a combination of wild wood and noble pleasure gardens the Bois is magnificent." So it is; and many other squares, gardens, and parks in Paris are magnificent, but in extent they are comparatively small.

The Luxembourge Conservatories are rich in rare plants, and in

the gardens classes are held for the study of gardening, fruit-tree pruning, etc., thus teaching practical horticulture.

The grounds of the Jardin des Plantes, which is a scientific institution, occupy about 75 acres, are open to the public, and are filled with rare plants. Here is found a museum of natural history, with its zoölogical gardens, its hot-houses and green-houses, its nursery and naturalization gardens, its collections for illustrating zoölogy, anatomy, botany, mineralogy, and geology. Its courses of lectures, by the most distinguished men of science, make it an institution of great eminence.

We cannot leave these foreign parks and gardens without speaking of one on one of the Borromean Islands, Isola Bella, in Lake Maggiore, one of those gems among the hills of northern Italy. Like the Duke of Devonshire, Count Borromeo opens both his palace, and his gardens to less fortunate mortals, without money and without price except the *pour boire* always expected by the servant who does you the slightest favor in a foreign land. The gardens are raised in terraces, ten in number, and they contain a large variety of plants, both domestic and foreign, so arranged as to give the finest effect. Oleanders luxuriate here in their own element, and are of immense size and of various colors. Here, also, we find vines of all kinds, the bamboo, cedar of Lebanon, and even the old friend of our boyhood, the American pine. One great swinging vine was quite a curiosity; a huge mass over a rocky grotto swinging out like an immense curtain. This reminds me that through Italy we saw many vineyards containing both the mulberry and the vine, the former trimmed down to close, thick heads, and the latter stretching from tree to tree, with the foliage and rich clusters of fruit swinging between.

But to come back to America. Our parks do not suffer in comparison with those abroad, when we consider the element of time. Few American parks are 100 years old and nearly all not much more than half that, while many of those on the other side are several times the age of ours, giving more time for those developments which take time. Of course, the old world is much richer in art, and its public grounds are more profusely adorned with statuary, fountains, etc., than ours, but, on the whole, no American need be ashamed of his country on this or any other account.

Many years since, the municipal authorities of our then infant city, in their wisdom, bought of Gov. Lincoln, an honored citizen, the tract now known as Elm Park, and some years later he left by will a sum of money to be expended in improving the same. For this pur-

pose also the city appropriated money, and latterly this has been done annually; this has been expended by our Parks-Commission, of which the honored Secretary of this Society is chairman. Under his special direction, this tract has been improved and beautified until in its landscape gardening and the annual floral displays, so many of our citizens enjoy, we have a park of rare beauty and one that will not suffer in comparison with many more pretentious, in our own country and abroad.

The names of Davis, Salisbury, Bigelow, and Dodge, will be forever identified with our city on account of their munificent gifts of land for park purposes. Lord Hobhouse of England says, "This is a kind of charity that cannot demoralize, and cannot be abused or jobbed"; and we might add, it is a very fine way for one to build his own monument.

By wise action, our municipal government has secured for present and future generations most desirable tracts that will forever be held sacred for the public. Who, to-day, would deem it wise to part with Newton Hill, even though the proceeds thereof would build a fine city hall? The donors of Institute Park and Lake Park did not stop with the gift of the land, but Messrs. Salisbury and Davis have spent handsome sums in improving them. Without generous gifts or bequests park improvements must necessarily be slow, as but little can be expected annually from the appropriations, there are so many wants seemingly more imperative in a growing city like ours. Could more men of large means realize that wealth is a trust and use it more freely while living, generous sums might be placed in the hands of the city to create a fund, the income thereof to be used under the direction of our Parks-Commission, for park purposes. Such a fund once established would be likely to receive additions, from time to time, by bequests and otherwise, and the benefits derived from it would be like the sun and rain from heaven, falling on both the just and unjust, giving comfort, strength, and courage to the former, and encouraging the latter to better and nobler living. Our lives are largely formed by our surroundings. We know not the secret influences that mould our habits and characters. No person can associate with a noble character without becoming nobler himself. A love and appreciation of the beautiful grows as we come in contact with the beautiful. As our tastes are improved our lives are made better.

> "And this our life, exempt from public haunts,
> Finds tongues in trees, books in the running brooks,
> Sermons in stones, and good in everything."

Our lives, not exempt from public haunts, but familiar with them, especially in beautiful public parks, of which our Elm Park is one, should find tongues in trees, books in the flowers, and lessons in everything. A man takes his wife and children for a stroll through beautiful grounds on a Sunday afternoon; the little ones drink in and enjoy the beauty of their surroundings; the mother sees a rare plant and in a few weeks one of the same kind is found in her window or garden; the father gets a hint from what he sees, which bears fruit in his garden.

The good done by the comparatively small sum of money our Parks-Commission is able to spend from year to year can not be measured by dollars and cents. But suppose we take one item, the trees that have been set by them in our highways, and let each man who has one before his door, state the sum for which he would consent to its removal, and doubtless we should be astonished at the result. Could much larger sums be used annually on our parks, and could each be developed in the next ten years as much as it is likely to be in the next fifty years, the real estate owners of the city could afford to pay the entire expense and be sure of a handsome profit should they desire to sell. May the time soon come when our Parks-Commission will have abundant means at its command.

22d February, A. D. 1894.

ESSAY

BY

JAMES COMLEY, Lexington, Mass.

Theme:—My Visit to Japan; Its Chrysanthemums and other Flowers.

In 1858 I unpacked the first two cases of plants ever imported into the United States from Japan. They included some *Lilium auratum*, and six varieties of Retinospora, all grafted upon one stem, which had been cut from the tree and placed in damp soil to preserve the graft. This exploit in grafting excited my curiosity respecting the methods of horticulture in Japan, and I have ever since felt a strong desire to visit that country of the rising sun. Therefore it was with great pleasure that I accepted an invitation to accompany Francis B. Hayes, Esq., on his proposed trip to Japan. But now I have been there, I cannot be satisfied until I have been there again.

We left Boston Oct. 5, going via. New York to Chicago, thence to Omaha, and via Union & Central Pacific route to San Francisco. As we passed rapidly along, we saw many evidences of the wondrous enterprise of our people, especially as shown in agricultural and horticultural operations, involving not only hundreds but thousands of acres of land, in the country west of the Mississippi River. The grandeur of Nature's handiwork also engaged our attention.

We arrived at San Francisco Oct. 10, and were there five days, which I passed in visiting Golden Gate Park; Sutro Heights, the seat of Adolphus Sutro; Sherwood Hall, the estate of Timothy Hopkins —a costly and once beautiful home, but now a commercial garden, although the costly vases, statuary, etc., are still remaining upon the grounds. At the station near Sherwood Hall was an *Agave Americana*, in bloom, rising thirty to forty feet in height. A market garden, ten acres in extent, also near, showed every variety of vegetable, with

strawberries in abundance—a curious sight in October. Chinatown, in San Francisco, was also visited one evening.

We left San Francisco Oct. 15, on the steamship *Peru*, and for twenty days endured an exceptionally rough passage to Yokohama. This city is an interesting sight; rising from the water front, every street has plenty of trees, and the upper branches seem to fill every street above the buildings. No street cars or coaches were awaiting the passengers, but there was many a "rikisha"—a small chaise or gig—in charge of men, who draw their passengers wherever they wish to go. These men will pass over forty to fifty miles per day, drawing this carriage and passenger, and then appear as smiling and happy as if they had made no extra exertion during the day. They are always cheerful and obliging if well treated, and satisfied with fifteen cents per hour for their services. But if slighted, or imposed upon in the least, they not only resent it, but give notice, far and near, of the fact, with such description of the offender that it is difficult for that person to secure any further service from any of this class, wherever he may go. We found the Grand Hotel an excellent one, upon the European plan, but with American viands added to the bill of fare, even Boston baked beans being included. Yokohama is a city of temples and gardens—every family has one of the latter, even if only a very small one. While in Japan I made the most of my time, passing every morning in prospecting, thus gaining much information. Visiting the establishment of Louis Bœhmer & Co., I was invited to lunch, after which he conducted me through his extensive gardens and greenhouses, where everything was in perfect order, and all the stock at its best. Of the large stock of chrysanthemums, I found only one that I cared for, and bought, but selected many other kinds of plants. Observing across the bay a hill covered by foliage and surmounted by a large temple, I went to it one morning; two maidens at the temple entrance beckoned to me to approach. When near the steps, one maiden seized my right foot and offered a slipper to put on it, the other was at my left. I removed my boots, donned the slippers and entered the edifice, which astonished and delighted me by the magnificence of sculpture therein, which represented men, animals, birds and flowers, all executed in the highest style of art. On leaving the temple I noticed a Ginkgo tree on either side of the entrance. They were fifteen feet in diameter and stood one hundred feet high to the lower limbs. They were noble specimens, and their effect was grand. The Cliff Gardens is only one of many pretty spots near Yokohama. There I saw dwarf figures, composed of chrysanthemums, represent-

ing all kinds of character. There are some elegant specimens of *Camellia Japonica*, in every shade of color. They compose a hedge of flowers twenty feet high, six feet in diameter, and extending five hundred feet in length. It was a sheet of flowers when I saw it. Near by was a *Daphne odoratissima*, eight feet in diameter and full of buds; also beautiful specimens of umbrella pines and gardenias.

The Yokohama Gardeners' Association grounds cover 200 acres of land; include greenhouses and stores too numerous to mention, and the floral and nursery business is carried on in the most perfect manner. Palms, pæonies, plums, cherries, evergreens, magnolias, and all classes of shrubs are in cultivation; also 600 to 800 varieties of chrysanthemums, including about seventy altogether new ones, which I obtained. But the most curious feature of all, was the hundreds of thousands of dwarf trees from five to 500 years old, the most beautiful collection of its kind in the world. It is impossible to buy any plants from a private garden. The gentry are as proud as the most ancient of British nobility. It is necessary to cultivate personal acquaintance with the proprietor, who, if assured the plant desired is only for private use in another country, may present a specimen. I visited nearly 100 such places in Yokohama, and every commercial place of note, gathering one or two choice things in each.

Tokio, the capital of Japan, was the next point visited. There are many temples with grandly timbered grounds, where many children, with their dapper little mothers, meet and pass the hours in the happiest manner possible. The palace of the Mikado is a large and handsome structure, surrounded by most beautiful grounds. Tokio contains many other gardens scarcely inferior, all of which are carefully kept, and contain most curious trees and shrubs. The imperial gardens are difficult of access, even when the Mikado is absent. However, I managed to gain favor, and feasted my eyes on the vision of beauty for a time. Tokio abounds in elegant parks and drives, and possesses a museum which would put to shame many of those seen in Europe. In the great park may be seen almost every kind of animal known in zoölogy. The Imperial Botanic Garden contains one of the largest collections of named plants in the world. A botanical student, whom I met there, told me there were no less than 18,000 named varieties of plants in those grounds. Dangozaka, the great chrysanthemum garden, is on the slope of a hill. In this place it has long been a custom to arrange these flowers to represent living notable persons, also birds and animals, or to tell of some historical event. On entering the grounds, flags and bunting seem to invite the visitor

in a particular direction, and showmen say they have a display of skill to show. The faces of the persons represented are carved in wood or plaster, but all else is illustrated by arrangement of chrysanthemum flowers. They are done in this manner: A frame is made of bamboo; the flowers—still on the plants, which are arranged behind the frame—are drawn through the frame and held in place by a packing of moss; all the colors are used necessary to complete the costume and the character illustrated, and being still attached to the stems and roots of the plants on which they grew, which are invisible to the visitor, retain their freshness thirty days. This is a very popular exhibition, to which the populace go in crowds, as one of the great events of the year. Other places in the vicinity of Tokio which I visited were Megura, Asakusa, Simei-Iriya, Hanka Yen, Senzokumura and Kusubunat-Honjo. On Sunday afternoon, after leaving the chrysanthemum show, I came upon a large concourse of people, evidently holding a celebration. There were at least 60,000 men, women and children. Horse-racing, dancing and games were in progress, and all appeared delighted. As I drew near, a host of happy, smiling little girls surrounded me, apparently attracted by my size, which is much above that of the average Japanese. I never before saw so large a crowd so orderly in conduct. The Lotus gardens in Tokio cover seven acres of land—or mud. This flower is very popular there, as to that people it represents purity and virtue, single-mindedness and usefulness.

From Tokio I went to Nikho, a great city upon the rise of a hill, noted for its magnificent temples; and its picturesque situation upon a range of lofty hills affords a view of grand scenery. Nature was in her best garb; decked in the richest autumn tints. I counted twenty-four varieties of shrubs upon twenty-five feet square of ground, and felt sure there must be some valuable plants as yet undiscovered by us. I was carried up the mountain-side in a basket borne by four men. From one point I saw, at the foot of a ravine, a shrub covered with red berries, and climbing down to it, found it to be a strange variety of barberry. I gathered the fruit, brought it home, and have plants now growing for future use.

On another similar excursion I secured about one hundred varieties of seeds from plants growing there. In wandering about the city of Nikho, I sometimes found curious plants, and occasionally obtained one or more of them or the fruit. The next place visited was Mineosta, thence via. Shidyawa and Yagoya to Kioto, where we remained a week. It was once the capital of Japan, and is now one of

her finest cities. There we found the finest chrysanthemums, and secured some very handsome varieties, some novelties of a new class. I visited some great rice-farms and orangeries, also climbed the great mountains. There are many old temples. A new one, not yet completed, has cost $6,000,000. It is highly enriched with delicate carving, of most artistic design of floral and other character. On one farm are seen eight acres of *Lilium auratum*, five acres of *Caladium esculentum*, four acres of lotus—thirty varieties—and other crops were growing. I secured some of each of thirty varieties of lotus. Later, I saw six acres of pæonies, of all ages; three acres of young trees—plum, cherry, peach—being grown for shipment; also mulberry trees by the acre, for silkworm culture, which is a great industry in that section. In the mountain ravines oranges were very abundant. A side trip was taken to Sacco, to visit the finest chrysanthemum show in Japan. The show included thirty different classes, all ranged in booths of bamboo, each class by itself. Specimen plants were grown in many shapes, four or five kinds grown as one plant and trained to make a perfect pyramid of different colors. The varieties and classes were perfectly gorgeous. After a careful examination I decided what I should like to take away and proposed to purchase. But they refused to sell until I convinced them I desired them for private use, and should take them out of the country. But I could not have any I had seen; I must select from a field of them just back of the exhibition grounds, to which I was at once taken. There were plants seven to eight feet high, and flowers seven to fourteen inches in diameter. Making a careful selection from this stock I found I had 175 varieties, which with previous selections made 400 varieties of chrysanthemums, besides several hundred varieties of other kinds of plants, which were at once taken to Yokohama to be started on their way to Boston. Among the ornamental trees were some that were 50, 100, and even 200 years old. Some of these treasures I brought with me, others I expect will arrive in April. I sailed from Yokohama Nov. 29. A pleasant voyage of fifteen days brought us to San Francisco. After seeing my plants on board the train for Boston, I left on the Southern Pacific Railroad for Pasadena, and stopped at the Raymond Hotel, of which Colonel Wentworth—formerly at the White Mountains—is proprietor. The extensive grounds and greenhouses are under the superintendency of Charles H. Hovey—son of the late C. M. Hovey of Cambridge. The climate is favorable for permanent sub-tropical gardening and the grounds are admirably planned and managed. The greenhouses are in charge of James Barrett, formerly

of Cambridge, and the condition of the plants is most creditable to his skill. Mr. Hovey took me to Los Angeles, a more southern point, where palms are permanently grown in the open air, I saw them twenty to thirty feet high, and Araucarias thirty to forty feet high, a novel and pleasing sight.

I reached Chicago again Dec. 20, and came home direct, arriving in a snowstorm, which was in chilling contrast with the tropical climate and weather of California, so recently enjoyed.

Japan is a paradise for travellers; there every one has opportunity to practise the lost art of politeness. Civility is a common virtue, even among the lower classes. I mastered enough of the language in five days to get along fairly well. The guide books are excellent, and the rikisha men are intelligent and faithful attendants. The women are exceedingly submissive, attentive to your wants and pleasing in manner. They are shy, demure little dolls and always seem happy. They are good housewives. I was invited to take tea with several Europeans who have taken Japanese wives; in each case I found the children were well educated in English and music, and the mothers very accomplished. The home is very sacred in Japan. You can visit a residence, go into certain rooms, but the inner sanctuary you cannot enter.

In Yokohama there are about 6,000 Europeans, many of whom have married native women. The theatres of Tokio are grand. I was surprised by the size and beauty of the Imperial Opera House, and as much pleased with the music and dancing. Japanese gardens are the most fairy-like places. You see in them tiny trees and flowering plants, ponds, bridges, summer-houses, lanterns; here, dwarf pines six or eight inches high, but 125 years old; there, others one foot high, but 500 years old. In the garden of Yeiju-in—within the temple grounds—there are many pæony plants, mostly old, but one is 100 years old, and is eight feet high—quite a tree. Most of the soil of Japan is a rich peaty loam; this is interspersed with a yellow light clayey soil. Both are extremely fertile, and in each there seems to be planted that which is peculiar to that soil. The fertilizer most used is rice straw, cut into small pieces, as with a hay cutter. But cultivators depend mostly upon irrigation from the rivers, and most careful cultivation; not a weed nor a waste piece of land will be seen in a long railroad journey. The farmer utilizes every bit of land he possesses. But farm tools are very crude. The bog-hoe is the chief tool used; occasionally a black bull may be seen hitched to what is called a plough, but the implement is so small it looks like a toy.

With the hoe, the blade of which is four inches wide, the soil is turned over, left a few days exposed to the sun, then levelled and seed put in. Every crop but rice is planted in rows, straight as an arrow. Men and women work in the fields. I saw some rice-threshing going on. Young women and children drew the rice straw across the teeth of a saw-like blade, by which the seeds were dislodged. It is a matter of wonder to our gardeners, how it is the Japanese curtail the growth of plants as they do. After noticing the plants in Japan, and the appliances and treatment, and considering all observed circumstances therewith connected, it is my opinion that the glazed, or marble pots they use, and which are not porous, retain moisture longer without watering, and also make frequent repotting unnecessary. I mean to experiment on this line. One can learn nothing from the Japanese gardener about it; I noticed all over Japan that they use very finely sifted soil for potting, and press the soil down very firmly about the plant roots. They seem to understand the true art of watering plants, and this seems to me to be the main secret of their success.

Nature and Art go hand in hand in Japan. The people never try to appear other than they are, and they never force things; there is none of that eternal rush we have here. They never hurry, but are always industrious. They are perhaps the cleanest people in the world, taking a bath two or three times every day, with water almost at boiling heat. The bath tub is everywhere, in country and city alike. I visited several silk and vase factories, and was surprised to see the beautiful work done, even by children of five to ten years old. They were making vases and chinaware. Some pieces require eleven months to complete, because of the amount of labor, and time necessary for drying the work. They are equally skilful in needlework.

If any one would renew life, I say, go to Japan instead of Europe. In Japan there is rest and enjoyment, and the beauty of the country has no end. I never saw a chrysanthemum flower until I went to Japan, where everybody loves it. I visited five hundred places where it is cultivated. But these were only the principal gardens in a few large cities. Go to Japan!

1st March, A. D. 1894.

ESSAY

BY

Mrs. A. E. HENDERSON, Worcester, Mass.

Theme:—Reminiscences of Land and Sea.

> Would you, so the helmsman answered,
> Learn the secret of the sea?
> Only those who know its dangers
> Comprehend its mystery.

On a flying trip across the Atlantic in one of our modern steamers, one does not always realize the tremendous power of the waves; but when you depend upon sails, you have plenty of time to see all the moods which old ocean can display—hurricanes, calms, waterspouts, etc. One experience of a West India hurricane would suffice for most people. A low barometer warns us to make ready for the approaching tempest. The sails are furled and every possible preparation made for the encounter. An ominous silence prevails on board, as we await the blast which strikes with such fury as to almost take away the breath. I well remember the shout of the Captain, "Down with everything." It seemed as though he could hardly speak, and then the fearful combat with the sea began.

I remember one time, when driving a horse, that he became frightened and ran for some distance. I wound the reins around my wrists and held on; when he was stopped, he stood still and trembled in every limb. I could compare the ship to nothing but that horse. It seemed, at times, as though she would stand still and every timber would tremble; then she would gather herself together and leap and plunge as though to get the better of those raging waters, which dashed on board claiming everything that had not been most securely fastened. I could hear the commotion on deck, as I quieted the two children in the stateroom. We could not remain in the cabin. The water was one

foot deep on the floor and everything that could get adrift was having its own way.

The storm lasted for twelve hours, but the sea had worked itself into such a commotion that it was three days before we could safely walk across the cabin floor. One of the children became weary of such close quarters, and ventured into the cabin, when he was violently thrown across the room, striking the sharp edge of a black walnut sofa, receiving a severe bruise. His impatience was checked, and he allowed himself to be amused in the stateroom until the waves had spent their fury. When we reached port we saw a ship with a large hole stove in her bow, which the crew had repaired sufficiently to allow of her reaching port. A barque had gone to the bottom, a few of the crew escaping. A large steamer had been sunk. In one of these dreadful encounters with the ocean you realize your helplessness. The highest ingenuity of man is as nothing. At times, his masterpiece of ocean craft is crushed by the waves and vanishes like a child's toy. Not long ago, one of our finest ocean steamers was boarded by a wave, damaging her so that she was obliged to return to port for repairs.

It is said that the depths of the ocean are free from the violent commotions which agitate the surface, otherwise the life of the innumerable inhabitants of the great deep would be most tumultuous.

One of the most trying things, when you are dependent upon sails, is a calm. To lie for days

> "As idle as a painted ship
> Upon a painted ocean,"

with the sun pouring down so fierce as to boil the pitch out of the decks; with the idle sails filled with no cooling breeze. In vain you walk the decks searching for a shady place. I think most seamen prefer a gale. The trade-winds are a delightful change, when you have been tormented with a lengthy calm. Then you become fascinated with the ocean, and sing of

> "A life on the ocean wave,
> A home on the rolling deep."

One of the most frightful things at sea is a fire. Once the cook after trying out porpoise oil, threw the scraps into the stove, which made such a blaze that a barrel which he had placed over the chimney to the galley caught fire, and when discovered was all ablaze. The cotton sails towered to the top of the mast directly over it. The second mate jumped upon the galley and, while the children and I held our breath, grasped the burning barrel and threw it overboard. With a cargo of

kerosene oil beneath our feet the contemplation of that blaze was anything but agreeable. It is a terrible thing to stand and see your property consumed by the flames on the land, but at sea when the flames get beyond control you have to choose between two elements. Those who have been placed in such an extremity invariably choose the water. I once watched a burning ship sailing down the Delaware. The pilot was about to leave when the captain invited him into the cabin. Striking a match to light a cigar, the gas which had formed in the closed cabin from the cargo of petroleum ignited, burning the ship.

The rigging of a ship is very hard for a landsman to remember. Some are surprised to find that the main sheet is a rope. Then there is the bonnet, waist, stays, braces, shrouds, martingale, etc.

While lying at a Cuban port the barque *Sarah Frazier* arrived from Europe; while on the voyage, in mid-ocean, the captain had lost his only son overboard. He was 16 years old, and had been brought up on the ocean so that he could navigate the ship as well as his father could. His watch was on deck at the time of the accident, which happened at midnight. His mother heard the cry, "Man overboard," and jumped up exclaiming, "It is Allie." It was very pathetic when they showed me the empty stateroom and unrolled the chart showing the pencil mark the boy had drawn indicating their course. How the accident happened was never found out. The captain told me the hardest thing he ever did was to fill the sails and leave his son out there in the ocean.

Some people are surprised to learn that you cannot anchor anywhere on the ocean. They do not stop to consider that the average depth of the ocean is four miles. In order to become a successful navigator you must have experience and know all the ropes as the sailors say, and the knowledge cannot be bought. A young man, whose father was possessed of wealth, had a ship nicely fitted out, which he undertook to navigate. Having but little experience he bought books of navigation and started on his voyage. They got underway all right and clear of the harbor. Elated with his success he turned to take a last look at the receding shore, when the wind blew a few pages over. When he consulted the book again he came to the order to let go the port anchor. The order on board ship is no sooner given than it is obeyed. The result was that the young man gave up the command to the first officer and went to the foot, and his experience, which money could not buy, was the road by which he became master of the art of navigation, which has been spoken of as the grandest outcome of

human genius and daring and enthusiasm. No one can read of our intrepid Arctic explorers without being thrilled with wonder at the courage and self-sacrifice which they have voluntarily undergone in the cause of science.

On a recent short ocean trip our party was seated on deck talking about the wonders of the great deep; I remarked that a row boat could be seen from the ship's deck at a distance of not over three miles. This was received with great incredulity. The young man who knows it all was standing near listening to our conversation. He was sure that was not so; he had been yachting the Summer before and he could see 40 miles on the ocean. To defend myself I sent for the first officer on board the steamer and asked him; he answered that if it was a very clear day, and you had good eyesight, you might see the row boat from a ship's deck at a distance of four miles. He also said the board of trade allowed them ten miles to see a steamboat. The young man who knows it all said he didn't believe a word of it, but he was very careful to speak so low that the officer did not hear him.

Years ago at an examination, which I took with others, one of the questions asked was, "What makes the ocean salt?" None of us knew. One of the committee explained that the rivers washed the salts of the earth into the ocean. If that is so, would not the rivers as they neared the ocean be salt? There is no instance of such being the case. Below New Orleans and Philadelphia ships fill their tanks with fresh water for a long voyage. It is said that the Amazon freshens the water a long distance at sea. If these immense rivers washed the salts from the land, how does it happen that the ocean is less salt where it receives these mighty waters? It has been found that the ocean contains a larger amount of salt where it is most remote from land. Whales could not exist in fresh water.

The Gulf Stream is the most important of the ocean currents. It flows from the Gulf of Mexico, at a distance of about 75 miles from our southern coast; here it is from 40 to 50 miles in width. It increases in width as it flows farther north, where it is met by the cold current from the Arctic ocean. The temperature is higher than the surrounding water through which it flows without mingling. If you draw a bucketful and put your hand into it, you will find it as warm as new milk. We have generally experienced rough weather while crossing the Gulf Stream. Many times the ice covered ships after vainly trying to enter our northern harbors return to these warm waters, where the ice all melts away and they are ready to try again, with perhaps better success.

The inhabitants of the great deep furnish a never ending source of entertainment to "Those who go down to the sea in ships."

"I hear a sound amidst the washing of the tide;
It glideth by our vessel now, wherever we do glide,
'Tis the whale—It is the shark! ah, see, he turns upon his side."

We passed several whales who seemed in no wise frightened, but remained around the ship for some time, every now and then coming to the surface to breathe. They seemed to be aware that we did not intend to attack them. Often the young whale is harpooned to secure the mother, who never deserts her offspring.

We met a young captain of a whale ship in Barbadoes, and later heard that he struck a whale with the harpoon and in paying out the rope it became entangled around his leg and he was drawn into the water. His body was afterwards found when the whale was again captured.

It was my good fortune, at one time, to see a whale on dry land at Provincetown. It was towed into the harbor and beached. People came from far and near to see it. It measured 80 feet in length.

Of the myriad inhabitants of the great deep the shark is the most voracious. From his attack no unarmed man can defend himself. I met a captain in the West Indies who had lost his mate overboard. He saw the shark bite him in two with one snap of his jaws. They have a number of rows of teeth, and are obliged to turn over when they seize their prey. They are found in all parts of the ocean, but attain their greatest size in the tropics, having been seen there 35 feet in length. They are often seen following ships, greedily swallowing everything thrown overboard, old boots being just as acceptable as anything else.

While in the West Indies we took the small boat and rowed to a fine beach to bathe in the salt water, a very risky thing to do, we were told afterwards, on account of the vicious sharks that frequent the place. We were told of a little child who trailed his hand through the water while in a boat, when a shark came alongside and bit his hand off. We took no more bathing excursions at that place.

At the mouth of the Rio de la Plata all hands threw out their lines and drew in fish as fast as they could bait their hooks. I was the only one on board who had no luck. Astonished that I got no fish I began to complain when, at that instant, I felt something tugging at my line. It was too heavy for me to pull in. The mate was standing near and I asked him to look over the railing and see what was pulling on my line. He did so, and reported that I had caught a shark. I

gave up the line and took myself out of the way. A harpoon was brought from forward and the shark was soon floundering upon the deck, snapping and biting at everything that was thrown at him in the most ferocious manner. After a while he was dispatched, and I kept a piece of the skin for a souvenir. The color is pale ash; it would answer for sand-paper. His presence accounted for my not catching any fish. He was contemplating my bait and it is very probable that the fish did not care for his company.

It has never been my good fortune to get a view of the sea serpent, although there are many instances on record of his appearance. In the museums are shown skeletons of gigantic animals which have not been known to exist since the time of history. It is possible that monsters may have previously existed in the sea as well as on the land. It is well known that the great species of the whale are not as numerous as in former times. It is said that there are serpents in the sea, but they are six feet in length. Eels are frequently seen of enormous size, sometimes weighing 100 pounds and ten feet in length.

In 1878 I saw a devil fish exhibited at a travelling show which came to Worcester. I read of a little boy playing on the beach in the West Indies when a devil fish reached out one of its long arms and carried the child into the sea. Fabulous stories are told of these sea monsters. Victor Hugo, in "The Toilers of the Sea," gives a vivid picture of an encounter with one of them beneath the sea.

Porpoise are often harpooned by the sailors. The meat is dark and one must be quite hungry to eat it. The liver and heart taste like those of a hog. They weigh about 250 pounds and in color are of a bluish black. Multitudes of them are seen leaping from the water at a height of five or six feet. Their presence is a sign that a storm is near at hand.

The Stormy Petrel or, as the sailors call them, Mother Carey's Chickens, are also noticed in stormy weather. They fly close to the water and have the appearance of walking on the waves, when in reality they are searching for food which is thrown up by the agitation of the ocean or that which may be thrown overboard. They fly very rapidly and many suppose they come around a ship for shelter. They are found hundreds of miles from the shore.

"Up and down! Up and down!
From the base of the wave to the billow's crown,
And amidst the flashing and feathery foam
The Stormy Petrel finds a home;
A home if such a place there be

For her who lives on the wide, wide sea,
On the craggy ice, in the frozen air,
And only seeking her rocky lair
To warm her young and teach them to spring
At once o'er the waves on their stormy wing."

We often amuse ourselves catching white Cape Horn pigeons with "bended pins for hooks." Immediately upon landing on deck they are seasick and stagger about for a moment as though dizzy. We caught one away out at sea with a pink ribbon around its neck. We wrote our names, latitude, and longitude on the ribbon and tying it around its neck parted with it, in hopes that some lonely voyager on the wide ocean might be amused as we had been.

In warm latitudes south of the Equator we have been surrounded with schools of flying fish. They spring from the water at a height of eight or ten feet, keeping on the wing for a few seconds, when they dip into a wave to wet their wings, in this manner flying for quite a distance. Although they were as thick as bees around the ship there was no way we could entice them on board. Sometimes they would fly on the deck in the night, and then the cook would surprise the most favored person on board with fried flying fish for breakfast. On the island of Barbadoes they are caught in large quantities in nets, and boneless flying fish is one of the delicacies which we remember in connection with that lovely isle. You have all heard of the young man, who, on his return from his first voyage, was asked by his mother to relate some of the sights which he had seen; he told her he had seen mountains of sugar, rivers of rum, and fish that could fly. The old lady said she could believe there were mountains of sugar and rivers of rum, but that she would never believe that fish could fly.

While at Sagua la Grande, Cuba, we took the boat and rowed to a beach which was covered with large shells. They were somewhat broken and faded, being exposed to the sun. The natives dive for the handsome pink-lined shells and eat the animal which inhabits them. It is very amusing to see these shells walking around on deck. One of the captains while walking on the beach picked up some small shells and put them in his pocket. Afterwards he called at his broker's office, and while sitting there talking they came out of his pocket and crawled up his coatsleeve, to the great amusement of a young lady who was in the office.

"The tiny shell is forlorn
Void of the little living will
That made it stir on the shore."

At Tripoli, on the coast of Syria, the shells are two feet deep; they could be carried off in cart loads. The surf at this place is tremendous. On a calm day, while walking on the beach picking shells, I looked up just in time to grasp the hand of one of the children and run to get out of the way. In a gale the height of the surf is tremendous.

"The fields and forests of our dry land," says an eminent naturalist, "appear sterile and empty if we compare them with those of the sea. Each kingdom skilfully imitates the other." On the Grand Banks the fishermen often draw up from the bottom imitations of vegetables and fruit, such as corn, lemons, etc. In the tropics every form of vegetation is represented beneath the sea; trees, flowers, shrubs, fruit, etc., in great variety and of contrasting colors. In crossing the Bahama Banks we could look down through the clear water and see the branches of coral, beautiful monuments of the little lives that have formed so many islands which are now inhabited by mankind. No language can describe the magnificence of these wonders of the deep. On the music shell the notes are written with striking exactness. Perhaps the sirens, when they charmed the sailors with their bewitching melodies, read their music from the notes written upon these shells.

The luxuriant tropical vegetation of the West Indies is something that we cannot imagine. The wonderful variety of fruit, the sapodilla, custard apple, pawpaw, guava, from which delicious jelly is made, shaddock, or forbidden fruit, star apple, sour sop, tamarinds growing in long pods, hanging from the tree in clusters. The mango tree is very common, the foliage dense, affording a most refreshing shade from the tropical sun. The cocoanut, orange, and banana are everywhere, and form the principal food of the natives. The flowers would delight the eyes of those who frequent this Hall. The choicest varieties are in profusion. We sat beneath the shade of oleander trees. Coffee has a beautiful white blossom. In sailing among these islands one would imagine he was looking upon fairy land. We visited Cuba, Hayti, Dominique, Granada, St. Vincent, Trinidad, and Barbadoes. Cuba was the least interesting to look upon, being low; Hayti is all mountains.

On a voyage from the Mediterranean to Buenos Ayres we sailed down the west coast of Africa, passed the Madeira, Canaries, and Cape Verde Islands and entered the region of equatorial calms, or doldrums, where we experienced calms, squalls and heavy showers, and found the oppressive atmosphere most uncomfortable. This region is noted as being one of the most disagreeable places at sea.

The emigrant ships from Europe to Australia, in former times, were obliged to cross it and passengers, in feeble health, suffered from the depressing influences, and oftentimes found a watery grave in this burying-ground of the ocean. Right glad were we to leave this place and enter the southeast trade-winds, where our drooping spirits revive and the oppressive sensations disappear. We are leaving the sun to the north of us. When we commenced our journey the sun shone into the forward cabin door; when half way it shone into the after cabin door. Long ago we had lost sight of the North Star, and the brilliant Southern Cross now beckons us on our watery way.

While at Matanzas we hired a volante and drove to the Cave of Bellamar. It is one of the most beautiful caves in the world, the discovery of which is most interesting. A negro, while at work on his master's plantation digging limestone, felt his crowbar slip through his hands and disappear from sight. In alarm he went to his master and told him what had happened. They dug around the crevice and soon peered into a deep, dark hole. Obtaining a rope and lantern the owner was let down into the bowels of the earth, and found himself in an immense temple, 1,500 feet in length, 200 feet wide, and 100 feet high, glittering on all sides and overhead with magnificent crystals, formed by the combination of water and lime. Mr. Santos Parga arose to the surface satisfied that the most valuable part of his property was beneath his feet. The cave had been explored for the distance of three miles when we visited it. The guide with a lighted torch, after burning a scorpion which he noticed crawling upon the doorway, led the way down the steps which had been erected to the bottom of the cave. We were speechless with wonder when we found ourselves in such a vast hall amid so much beauty. The stalactites and stalagmites meeting, forming immense columns. Articles innumerable were represented, which glistened like diamonds as the guide waved the torch, including an organ, embroidered garment, and a confessional. There were millions of fantastic shapes, so we thought it no harm to take a souvenir. In breaking a small piece the cave rang with the reverberations. The guide remonstrated with us, but as we could not understand Spanish his jabbering was wasted. He had us in his power, however, for had he extinguished the torch we would have been in total darkness. A lady in our party wrapped her handkerchief around the specimen she appropriated and broke it off without making any sound. Why we were not allowed to take any was because they wished to sell most exquisite specimens in small

boxes, for which the price was only eight dollars. Matanzas connects with Havana by rail, and a visit to that place is well worth the trip.

In sailing through the Straits of Gibraltar, where the mountains of Europe seem to rival those of Africa, the most remarkable object that meets your wondering gaze is the Rock itself, rising abruptly from the low sandy isthmus which connects it with the main land of Spain. The Straits are 36 miles in length and 13 miles wide in the narrowest part. The current always sets towards the Mediterranean Sea, running at the rate of three miles, giving one the impression that the vast Atlantic had forced its way through this narrow opening in spite of every obstacle. This remarkable inland sea is said to be salter than the ocean and has no visible outlet. There is supposed to be an undercurrent flowing into the Atlantic. The evaporation here is known to be very great, owing to the heat from the deserts. Sailing ships must wait for a levant, or easterly wind, before attempting to pass from the eastward. At one time we, in company with 250 sail, were 14 days lying off and on back of the Rock before we could enter the Straits.

Can we ever forget the grand sight as we looked, for the first time by daylight, upon Gibraltar, that almost isolated rock rising to the height of 1,470 feet, three miles in length from north to south, and three-quarters of a mile wide? The view from where we lay at anchor bore a striking resemblance to a huge lion looking towards Spain. I have since seen a magnificent painting of the lion view at Wellesley College. On a nearer approach the resemblance to a lion gradually fades away and a steep perpendicular height is presented to our view. I have seen the rock from different approaches, but its first appearance is the one that will be forever fixed in my memory. The city which lies spread out before us is indeed founded upon a rock. We cannot realize that instruments of death are looking out at us from every available point, so calm and peacefully reposes this monster at the doorway of the Mediterranean. The next morning we were on shore bright and early to take a jaunt on Gibraltar. First, we procured a carriage and drove to the neutral ground between the Rock and Spain, which is a low sandy isthmus 1,000 yards wide. I read in the paper, not long ago, of some Spanish women who came onto this neutral ground to sell their goods. The goods were confiscated. The next day the women returned with their friends and demanded the goods, which were refused. They then attacked the place where they were stored, and became so furious that the militia was called out to drive them away. After driving upon the beach we passed through the city and drove to Europa Point, on which the lighthouse is situated. From

there we drove to where the guides whom we had engaged, with their donkeys, were waiting to pilot us up the rock. The path was zigzag, and so narrow part of the way that we trembled for fear the donkey might make a mis-step and throw us down the steep sides. We saw beautiful flowers of every variety growing along the sides of the Rock, and frequently stopped the guide, who was leading the donkey, and sent him to gather lilies, whose fragrance we could not pass. Every shrub was in bloom. Lizards were crawling around everywhere. About half-way up we alighted and entered the cave of Saint Michals. The main entrance was closed by the government, as several have entered this cave and never returned. One might easily lose his footing and plunge down the yawning abyss that gave back no sound when a stone was dropped into it. We broke off some stalactites and mounted our donkeys to proceed upwards, and after a most romantic trip reached the signal station at the top of the Rock, where was stretched before us a most magnificent view. The snow clad mountains of Spain, the blue Mediterranean, and the mountains of Africa. We looked through the powerful glass through which the name of every ship that passes the Rock is read, and then partook of some bread and cheese with English ale, which was procured at the top of the Rock. The keeper introduced us to his little son who was born upon this elevated height and named "Gibraltar." They called him Gib for short. He ought to become a poet, looking out upon such grand scenery every day of his life. It must be an inspiration to gaze upon such grandeur. It is said that scenery influences character. "Switzerland is a country of mountains and of heroes. While the inhabitants of low and level countries, especially on the plains of Russia and Asia, submit to oppression and never dare like mountain-bred men to break their fetters." While visiting Niagara, a few years ago, I said to the driver of our carriage, I suppose you grow weary of constantly viewing this wonderful cataract. "No," said he, "I never am tired of looking at the Falls and often, when business is dull, I go down and look at them." After we had rested we began to descend Gibraltar, and entered the extensive galleries, filled with guns, which were drilled out of the solid rock.

We went into St. George's Hall, which is also drilled out of the solid rock and filled with guns pointed in every direction. Often the officers clear the hall and invite their ladies there to dance. There is another hall similar to this, named Cornwallis. After walking through galleries until tired, we rode to a precipice where we dismounted and seated ourselves to witness a sham battle on the plain below, which

was most exciting. All the manœuvres of a real engagement were gone through with, breastworks thrown up, rifle-pits dug, powder burned. The enemy were engaged and routed just as in a real battle, only there were no dead and wounded left on the field. When the fight was ended the soldiers all jumped up, fell into rank, and marched to town. There were between five and six thousand men engaged in this sham battle. As we stood and watched them pass, it seemed as though there was no end to red-coats. They were accompanied with bands of music and looked tired and dusty. We were very fortunate, being on the Rock at this time, to witness this sham battle. Gibraltar is shut off from all communication at seven o'clock by heavy iron gates. We passed through the gates a few moments before seven to our floating home. As we sat in the comfortable cabin, wearied with sight-seeing, we felt repaid for all the inconveniences we had suffered on our voyage across the stormy Atlantic in March.

The city of Genoa presents a fine appearance from the sea. It is in the form of an amphitheatre rising five or six hundred feet, and in the distance the mountains lend their charm to the beautiful picture. The harbor is formed by two moles about eighteen feet high. A steam tug came to our assistance, and we were soon in the commodious harbor amid a perfect forest of shipping. The bells were merrily ringing for church. They had a sweet, silvery tone, and kept up a constant jingling throughout the day. Genoa is called the city of palaces. The king's palace has 150 rooms, gorgeously furnished with hangings of velvet and floors of marble, elegant pictures, etc. We could here appreciate the song "I dreamt that I dwelt in marble halls." Another palace has 365 windows. Every day in the year you can look out of a different window. The cathedral of San Lorenzo was built in the 11th century. It is of black and white marble. The Annunziata has recently been restored. The whole interior fairly glitters with gold.

The new part of the city is very fine. It is a delight to walk in the public garden where the better class resort. The streets are so narrow in the old part that carriages cannot pass through. The buildings are very high, shutting out the sunlight. There is a celebrated bridge, connecting two hills, which leads to a church. The houses are seven and eight stories high, but this bridge is far above them. In walking out one day we noticed the people run and look over the bridge. We also looked over and saw a man lying dead on the pavement far below. It gave us such a shock to see the man lying there dead, that we took pains to inquire what had caused him to take such

a fatal leap. We were told that it was "an affair of the heart." Here was an illustration of the rashness of the Italian nature.

Genoa has long been celebrated for its handsome women. I was disappointed and came to the conclusion that I was a poor judge of beauty. I have seen just as handsome ladies in Worcester. The men, rich and poor, are obliged to drill in the army for five years, and are noticeably fine looking. At the art studio we saw a fine painting of Columbus leaving his little son with a monk previous to his setting out on his voyage of the discovery of America. A beautiful monument of pure white marble was erected in 1862 to his memory. He was born fifteen miles out of the city in a small stone-house on the seashore.

La Spezia is a rendezvous for men-of-war and is one of the chief naval stations of Italy. The scenery of the gulf is very beautiful. We saw the stars and stripes flying from an U. S. war ship which was harboring here.

Leghorn, or Livorno as the Italians call it, is quite an important place. The land all about it is low and marshy, quite different from Genoa, which is all up and down. Conspicuous on the wharf is a monument of one of the king's sons with four black pirates from Tunis chained at his feet, all in bronze. The pirates destroyed a great deal of the commerce, and the king's son volunteered to go in search of and capture them. The rule was, if any ship entered the port without raising the flag of Italy the offender should have his head cut off. The son was so rejoiced at having captured the pirates that he entered the harbor forgetting to hoist the colors. He was beheaded, and this monument was erected to his memory by the people. At this place we supplied ourselves with Leghorn hats. The women beggars were seated on the steps of buildings industriously knitting stockings. The children were nibbling at pumpkin seeds, which are on the stands for sale just as peanuts are here. We loaded here with a cargo of marble from the mines of Carrara. Part of it was in blocks weighing five or six tons.

Procuring a carriage, we drove from Leghorn through a level tract of country containing wheat fields, groves of pine trees, mulberry trees, and grape-vines to Pisa, situated on the famous Arno River, which flows through one of the loveliest valleys in Italy. Long before we reached the city we did not need any one to tell us that what we saw in the distance, conspicuous above everything else, was the celebrated Leaning Tower; one of the seven wonders of the world. The walls of the city are five miles in circuit. When we reached the

gate the officers looked into our carriage to see if we had any contraband goods. There is a heavy fine for smuggling salt and tobacco. Driving over one of the bridges which crosses the Arno, we made no delay in ascending the tower, where we had a most charming view of the surrounding country and the mountains in the distance. A great many people have thrown themselves from the top of the tower, so less than three are not allowed to go up at once. It is simply frightful to look down and I should not wonder if some have become dizzy and fallen without intending to commit suicide. The tower contains a chime of bells, is 178 feet high, and leans 15 feet from the perpendicular. Many suppose it was built in this manner, others are of the opinion that it has gradually sunk, which is the most probable. I read of an old lady and gentleman, who had gone a long distance out of their way to see this wonderful piece of architecture, when it was pointed out to them the old gentleman said: "So this is the famous tower of Pisa! Well, it's the most out of plumb thing I ever sot eyes on. I wouldn't get the contractor to build me a hen-coop!" We were charmed with the baptistery, which is also built of marble, and one of the most celebrated in the world. Its shape is circular. At the top of the dome is a statue of St. John. The interior is very beautiful, and has a wonderful echo. The guide sang one or two strains and it seemed as though there were a whole choir of voices flooding the building with most delicious music. Pisa is noted as being the birthplace of Galileo. In the cathedral is the swinging lamp that gave him the idea of a pendulum. We visited the cemetery, which is very ancient. It contains fifty vessel-loads of earth brought from Jerusalem.

One of the greatest blessings to the mariner is the lighthouse. Since 1830 the nations have rivalled each other in lighting up the dangerous coast. Ship-masters have books of information describing the peculiarity of each light. Some are stationary. Some places have two and three lights, as the twin lights of Navesink and the three lights of Nausett. Some are revolving, like Fire Island light. Some flash, like Barnegat light, which can be seen twenty miles. The distance which a light can be seen depends upon the atmosphere. In the Mediterranean, where it is very clear, it can be seen at a greater distance than on our coast. After being baffled and beaten and blown about on a long voyage across the stormy Atlantic in March, how welcome have been the harbor lights! We cannot estimate the number of lives that are annually saved by these warning beacons which everywhere light up the perilous coast.

"Not one alone; from each projecting cape
And perilous reef along the ocean's verge
Starts into life, a dim gigantic shape
Holding its lantern o'er the restless surge.
And the great ships sail outward and return,
Bending and bowing o'er the billowy swells
And ever joyful as they see it burn
They wave their silent welcomes and farewells.
Steadfast, serene, immovable, the same
Year after year through all the silent night
Burns on forevermore that quenchless flame,
Shines on that inextinguishable light.
A new Prometheus chained upon the rock,
Still grasping in his hand the fire of love.
It does not hear the cry nor heed the shock
But hails the mariner with words of love.
Sail on! it says, sail on, ye stately ships!
And with your floating bridge the ocean span;
Be mine to guard this light from all eclipse,
Be yours to bring man nearer unto man!"

I remember, when a child, an old time citizen of Worcester, who frequently visited my father's house, who said there were two things he could never be persuaded to do—he never would cross the suspension bridge at Niagara Falls, and he would never cross the ocean. I remember thinking, child as I was, that if the opportunity ever came to me I would cross them both. Years ago, the old time citizen crossed that bridge to the unknown country from whence no traveller has returned. I believe that a beacon light illumined the way, so that he had not a single fear. If we are guided by the "Light of the World," when we have finished the voyage of life and are called to go aloft, it will make little difference when the summons comes whether we are on the sea or on the land.